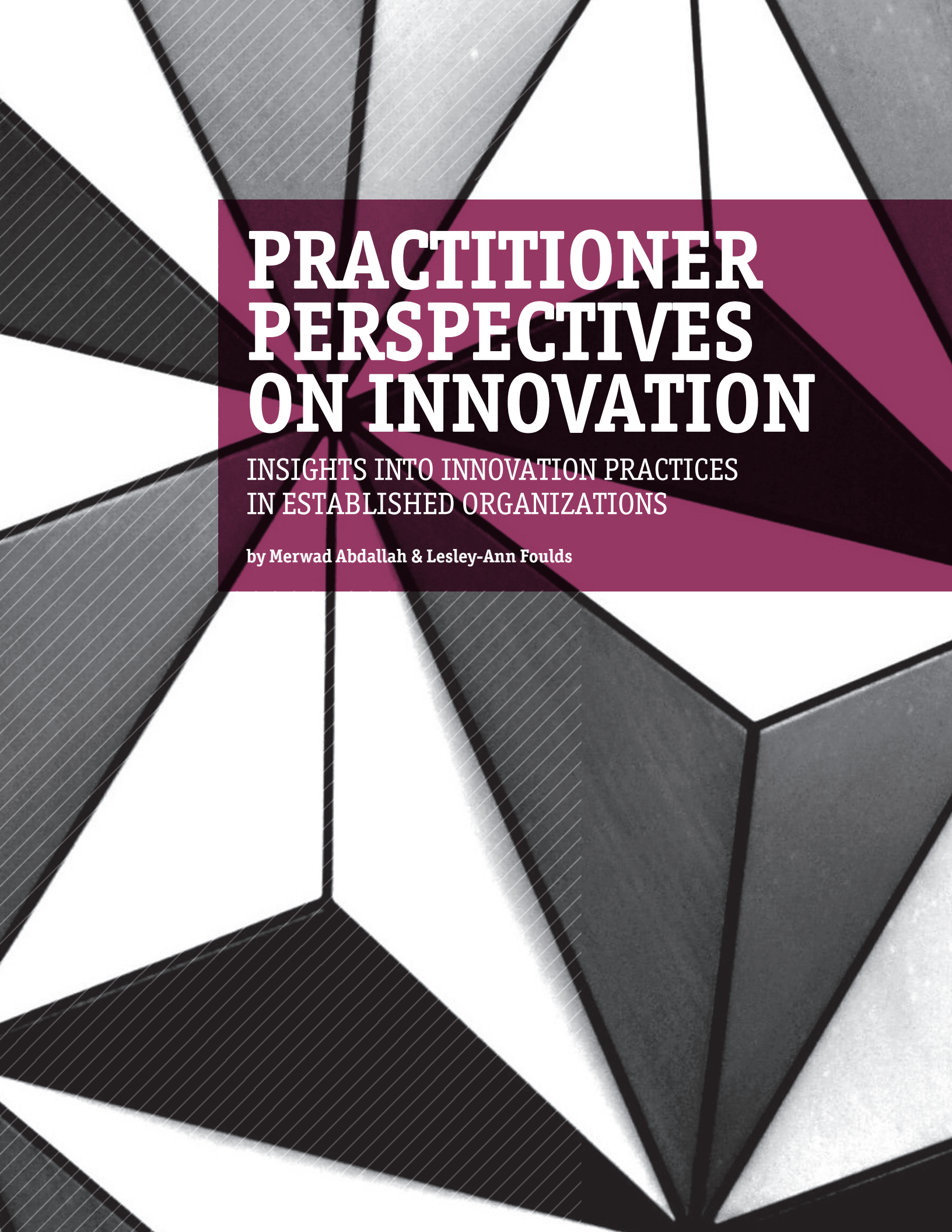

PRACTITIONER PERSPECTIVES ON INNOVATION

INSIGHTS INTO INNOVATION PRACTICES IN ESTABLISHED ORGANIZATIONS

by Merwad Abdallah & Lesley-Ann Foulds

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for the degree of Master of Design in Strategic Foresight & Innovation

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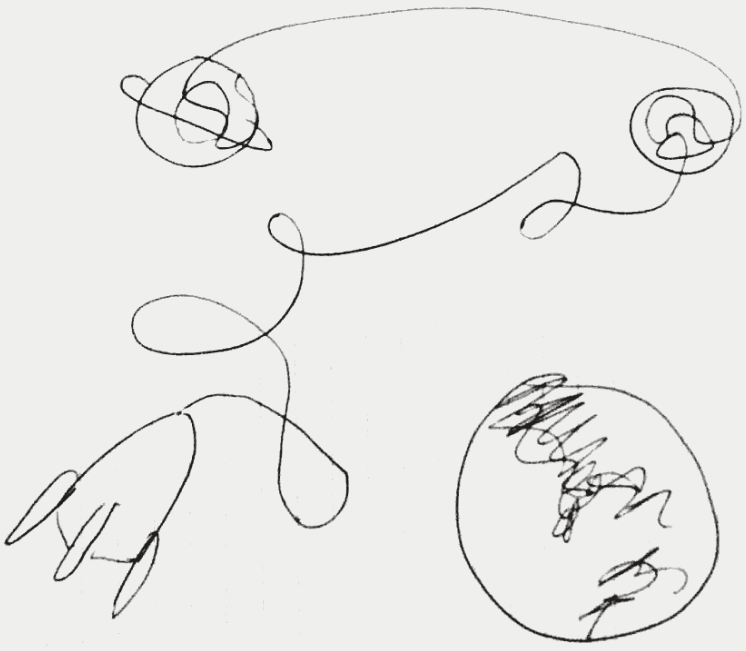

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ABSTRACT

This paper explores the design of innovation systems in established organizations and how innovation approaches could be designed to account for organizational and sectoral realities that appear to be in conflict with innovation practices. Through a human-centered design approach, including a literature review, survey, and semi-structured interviews, the research team identified key insights associated with the challenges of integrating innovation into large, established organizations, specifically at the worldview and values level of analysis. Causal layered analysis is used to develop a deeper understanding of the issue. An organizational diagnostic is provided along with innovation system design principles and recommendations to support sustained innovation practice in established organizations.

KEY WORDS: innovation, innovation systems, established organizations, values, corporate innovation

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Thank you.

P.S. This Major Research Project is the culmination of our hard work and commitment over the course of the SFI program. As friends from day one, we are so proud to have shared this final SFI experience and look forward to exciting new roads ahead.

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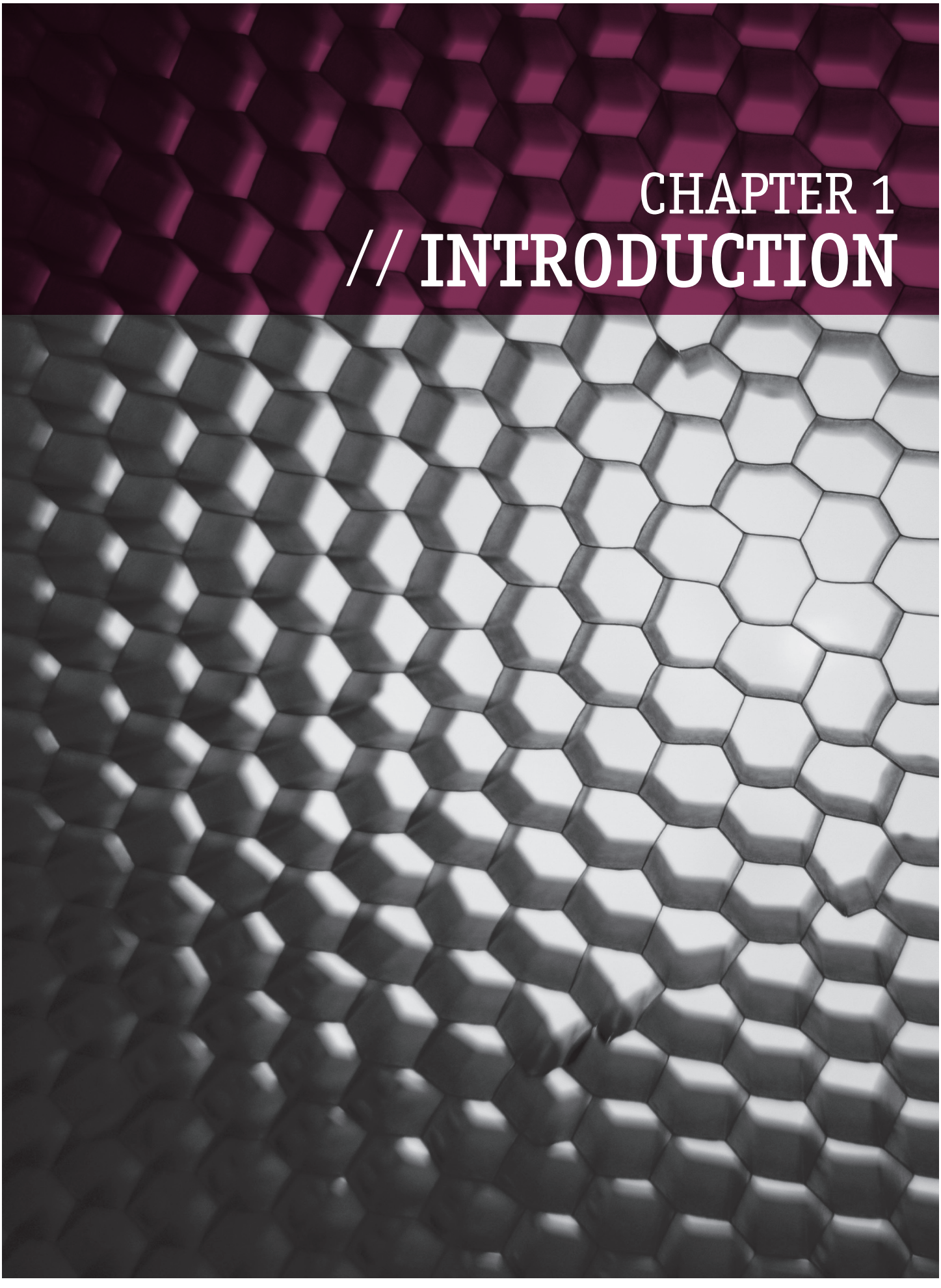


CHAPTER 1
// INTRODUCTION

WHAT'S SO GREAT ABOUT INNOVATION?

// RESEARCHER BACKGROUND

With the pervasiveness of innovation efforts today, it would be tough not to feel that we are always catching up to the latest developments. Whether technological or social, innovation has become both a challenge and advantage in our academic and professional pursuits.

Innovation is seen as the salvation of our workspaces, the differentiator in our academic studies and, more importantly, a qualifier of our expertise. This slippery slope leads to not only "innovation snobbery", where only the shiny new concepts are celebrated, with innovators being constantly asked if their work and research is "sexy".

As we worked through the early phases of this research study, we had conversations with our classmates and colleagues that debated what innovation is and isn't, if it materializes out of thin air or is pursued systematically, if it is pursued exclusively by rule-breakers and the startups of the world, or whether it has a place in more stable settings.

Although innovation is sometimes regarded as radical, emergent, and chaotic, we know the rigorous process of defining and redefining problems, searching for solutions, and testing for optimal delivery is not as haphazard as some people may think. Innovation systems themselves are paradoxical in nature - applying a process to harness creativity, providing freedom to explore ideas but grounding solutions in practical implementation.

With our professional backgrounds in design and engineering, we see innovation as one of many means to an end. It's about humans solving problems together. But what are the challenges our organizations are trying to solve? Is there a way for innovation practices to thrive with formalized hierarchical structures designed to deliver repeatable outcomes?

THE COOL KIDS ARE DOING IT

// ORGANIZATIONAL CONTEXT

"Far from becoming a cliché, innovation will be as important to future leaders as strategy and operational excellence is to current ones"

(Scott D. Anthony, 2012).

Innovation is the new norm, a seemingly necessary component of future survivability for private corporations and legacy, established organizations. A recent Harvard Business Review survey of more than 7000 respondents gave a bleak view of innovation in large bureaucratic organizations. According to the results, the article indicates that "bureaucratic drag slows work down, wastes time, stifles innovation, and causes employees to focus too much on internal matters rather than their customers" (Hamel & Zanini, 2017).

Our decision to study how innovation happens in bureaucratic contexts is a direct result of our professional and educational experiences. Reflecting on our graduate degree, our places of work, and our organizational innovation mandates, we rest squarely in the centre of the following Venn diagram (Figure 1). The diagram maps out the research participants we approached as well as the target audience for whom this research is intended. By mapping out the intersections of these different groups, we were able to highlight our innovation space, and develop a research study for others like us. The following sections describe our research on the tensions of innovation in large organizations, our understanding of innovation system dynamics, and finally our contribution towards a more innovative future.

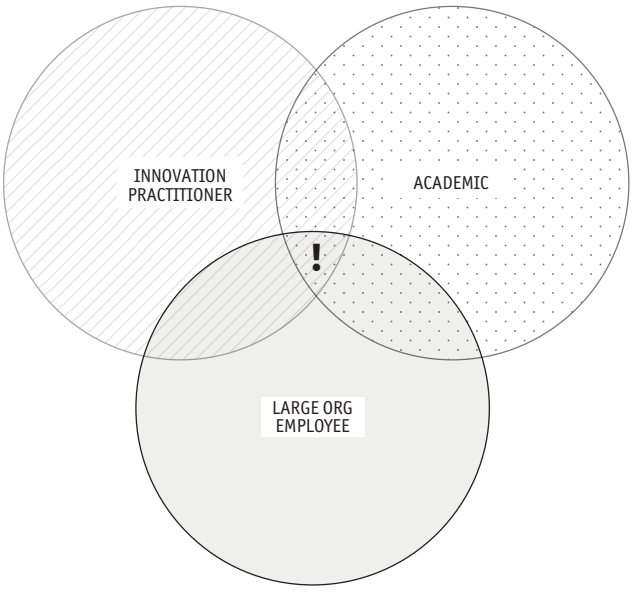


Figure 1 // Venn Diagram Of Three Areas Of Innovation Interest: academic (scholarly and theoretical exploration), innovation practitioners (the commercial pursuit of innovation whether in consultancy, start-ups or innovation labs) and employees of large organizations.

OUR VALUE PROPOSITION

// RESEARCH GOALS

The intent of this MRP is to show that large, established organizations can indeed innovate, and to explore how their innovation systems could be designed to account for their organizational and sectoral realities.

Our research project starts by developing an understanding of how the innovation systems currently function inside large established organizations, including public administration. We also explore the innovation systems at a structural level, as well as at a belief and values level, to determine a possible path towards sustainable innovation systems in established organizations.

The outcome of this research project intends to provide recommendations on how established, legacy organizations might begin to build or strengthen sustainable innovation systems. Our researcher bias is towards developing tangible and actionable outcomes that, while based on academic research, could be applied by innovation practitioners. Our contribution is geared towards a realistic, yet aspirational goal of developing innovation systems in established organizations, with recommendations that focus on collective power instead of individual effort.

Finally, our research methodology and analysis follow a human-centred design approach, with research involving experts in the field of innovation design, academic literature, as well as self-identified innovation practitioners working in established organizations.

Our MRP focuses on the humans at the core of the systems and structures of these large, legacy organizations, as the public and private institutions we studied are made up of people who are committed to the success of their organizations and who believe in the possibility of transformational change.

This research is for innovation practitioners who are working tirelessly to shift the system from the inside.

CHAPTER 2
// THE PROBLEM SPACE

To better understand our problem space, our research started with looking to academia to help first define innovation and how it happens, then to move on to understand and map out the context of the large organizations we choose to examine for our MRP.

WHAT DO THE ACADEMICS SAY?

// DEFINITIONS OF INNOVATION

Our literature review revealed that there are myriad definitions of innovation present in academia.

Schumpeter in the late 1920s was first to define innovation and stressed the "novel" aspect of the practice in terms of output, method of production, market, supply source, or organizational structure. Over the coming decades, others expanded the definition of innovation to include: its different forms, the involvement of new technology, its diffusion, its necessity and intentionality along with its beneficial nature, its successful implementation and the focus on knowledge as an element of innovation (Crossan & Apaydin, 2009; Baregheh, Rowley & Sambrook, 2009).

Damanpour and Schneider (2006) attribute the difference in definitions to the multiple perspectives that stem from the various disciplines (or businesses) that are practicing innovation. While some overlap exists between the various meanings of innovation, there is no clear "authoritative" definition.

Crossan and Apaydin (2009) systematically reviewed and synthesized almost three decades' worth of academic literature and research to present a comprehensive definition that offered a "multidimensional framework of organizational innovation":

> ***"Innovation is: production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and the establishment of new management systems. It is both a process and an outcome"*** *(Crossan & Apaydin, 2009).*

The definition of innovation that Crossan and Apaydin land on presents where innovation originates (produced internally or assimilated externally), as well as introduces the implementation aspect of innovation. It highlights the added value across various levels of analysis and underlines the relative concept of "newness" (novelty relativity). It finally speaks to the duality of innovation as a means to an end and as an end product (process vs outcome) (Crossan & Apaydin, 2009).

Looking at the definition offered above, we are left with a feeling that innovation alludes to anything that has impact. Moreover, despite the all-encompassing definition offered by Crossan and Apaydin, the term is still vague. The various attempts of defining innovation from our readings of different academic references reinforces the fact that there seems to be no standard definition of innovation (Anderson et al., 2014; Crossan & Apaydin, 2009).

To reflect the variety of academic positions above, we did not impose a definition of innovation when working with participants and, instead, chose to explore the meanings of innovation as provided by innovation practitioners. We wanted to gain a practical perspective on how innovation practitioners within established organizations functioned inside their innovation systems and their definition of what innovation means to them offered an opportunity for further exploration.

We did, however, use Baregheh et al. (2009) definition as a means to frame and analyze our findings, as evidenced later. The definition below offers a framework that is, in our opinion, workable for our purpose. It is clear, concise and comprehensive enough, without being too wordy or vague:

> ***"Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, to advance, compete and differentiate themselves successfully in their marketplace"*** *(Baregheh et al., 2009).*

The Baregheh et al. (2009) research involved a content analysis on innovation definitions from different disciplines including economics, entrepreneurship, business and management, and technology, science and engineering, to arrive at six key attributes. These six attributes are: nature of innovation, type of innovation, stages of innovation, social context, means of innovation, and the aim of innovation.

HOW DOES INNOVATION HAPPEN?

// TYPES OF INNOVATION

Moving on from the definition, we look to the other aspects of innovation: the motivation behind it, the overall process, the various approaches, as well as the types of innovation. Starting with the motivation, we recognize the role innovation plays in creating value and sustaining competitive advantage. The literature suggests it is also a representation of a "core renewal process" (Rowley, Baregheh & Sambrook, 2011) and a means of changing the status quo, and pursuing increased performance and growth (Corsi & Neau, 2015).

As for the process of innovation, Kanter (1988) suggests four primary stages that correspond to the creative and action-oriented nature of the work. These stages are not necessarily sequential, but are required for the success of an innovation project and support our understanding of how innovation happens (Kanter, 1988).

Idea Generation // activation energy from individuals with ideas

Coalition Building // gaining the necessary power to act on the idea

Idea Realization // turning the idea into something that can be used

Transfer (or Diffusion) // sharing the innovation (commercializing, adopting, etc.)

As for the approaches to innovation, in this research study we classify the main approaches as incremental, architectural, or radical. We offer the definitions below, combined and adapted from O'Reilly III & Tushman (2004), Norman & Verganti (2014), and Kline & Rosenberg (2009).

Incremental Innovation // evolutionary changes that improve existing processes / products / service and that result in increased efficiency (e.g. iterative design improvements decreasing the size and weight of cellphones)

"Solving the same problem, just more efficiently"

Architectural (or Process) Innovation // a form of incremental innovation where the application of new technologies or processes changes a part of the organizational functions (e.g. use of sensors on field equipment to provide remote indications as opposed to operator walkdowns)

"Solving the same problem, with a different approach"

Radical Innovation // revolutionary changes that disrupt existing ecosystems and irreversibly change the landscape of the sector or competitive environment (e.g. the Internet)

"Redefining the problem, and solving it with a novel approach"

For descriptions of the types of innovation, we looked to academic and commercial models. Our review of commercial or consulting based literature reveals that Doblin's Ten Types of Innovation framework (Figure 2) is the industry standard, and it is a reference for most consumer product / service firms when it comes to exploring possible opportunity areas for innovation. The use of the the Ten Types model as a diagnostic tool as well as a competitive analysis tool makes it a highly practical and commonly used model.

Figure 2 // The Ten Types Of Innovation Framework, as presented by Doblin.

As for the types of innovation from an academic perspective, Rowley, Baregheh and Sambrook (2011) offer a comprehensive typology model (Figure 3) (based on Francis and Bessant's 2005 innovation type model) that maps the different types of innovation as well as the relationship between them. Their research compiled and analyzed a multitude of innovation models, typologies and frameworks and resulted in their understanding that for an organization to succeed in today's competitive landscape, it must ensure a "360 degree innovation" capacity (Rowley et al., 2011).

A key differentiator between the Ten Types of Innovation and Rowley, Baregheh and Sambrook's models is the inclusion of the latter group's "paradigm innovation". Rowley et al. define Paradigm Innovation as a "significant shift in perceptions or markets", such as when an organization manages to reframe their mental model as a whole (Rowley et al., 2011).

The introduction of a paradigm shift as an innovation type, as presented by Rowley et al. (2011), presented an opportunity for further examination. It was a concept that cropped up a number of times during our research, especially when uncovering motivations and aspirations for innovation that stem from our practitioner research.

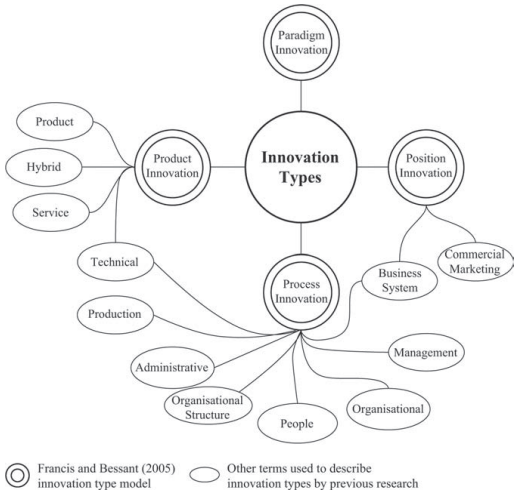


Figure 3 // Rowley et al. (2011) Innovation Type Framework.

INNOVATION DOESN'T HAPPEN IN A VACUUM

// ORGANIZATIONAL CONTEXT FOR INNOVATION

As for the context in which innovation occurs within large enterprises, we find that Crossan and Apaydin (2009) offer a framework (Figure 4) that is specific to organizational innovation. This framework links the determinants of innovation (leadership, managerial levers and business processes) to the dimensions of innovation (process and outcome). The researchers uncovered 10 innovation determinants that were consequently organized in three levels (the individual and group level, the organizational level, and the process level). Crossan presents a distinct theoretical rationale behind each of the three groups: upper echelon theory backs innovation leadership, while dynamic capabilities theory is behind the managerial levers, and finally process theory supports business processes (Crossan & Apaydin, 2009).

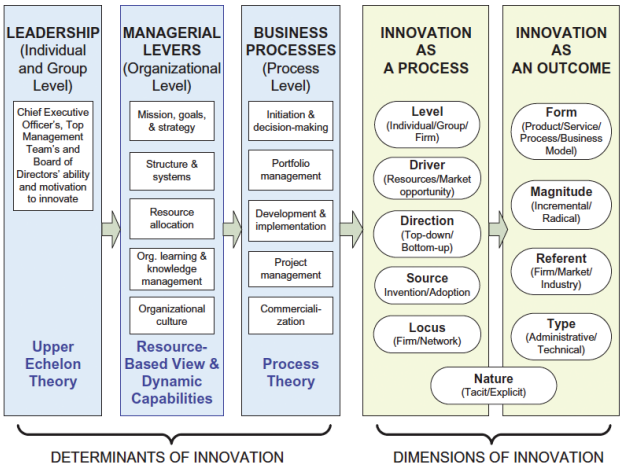


Figure 4 // Crossan and Apaydin (2009) Determinants Of Innovation.

Alternatively, the Innovation Model (Rao & Weintraub, 2013) developed by researchers at MIT looks to the components necessary to build/ensure a culture of innovation. According to the model, the six building blocks that make up an innovative culture at an organization include: the allocation of sufficient resources to innovation practices, innovation processes that support repeatable ideation and value capture, shared definitions of success, entrepreneurial values that support creativity and learning, energizing behaviours, and a climate that prioritizes open, easy collaboration.

From these two models we gain insight into both the structural and social context in which innovation is practiced. Our interest was to explore a model that would combine or address both, since research shows that the organizational context in which workers operate can often limit their ability to define and redefine problems to enhance optimal solutions (Smith & Linsey, 2011). How might this affect innovation practice for people who work within interdependent and bureaucratic environments?

To understand this environment, we looked to contemporary analyses of bureaucracies - ones that expand the original Weberian concept to account for much of our everyday experiences with bureaucratic structures.

CAN BUREAUCRACIES BE INNOVATIVE?

// ORGANIZATIONAL STRUCTURE & INNOVATION CAPACITY

Bureaucracies are organizational structures designed to mediate social interactions towards prescribed outcomes, minimize uncertainty, and concentrate control (Graeber, 2015), prioritizing rational outcomes over messy, creative processes. One perspective on why creative or speculative thinking is typically limited is that as a society, we consider some human qualities to be more valuable than others (e.g. rationality is respected more than imagination) (Saul, 2001; Styhre, 2007). Based on this deeply held belief, we continue to institutionalize an imbalance of human potential, prioritizing reason over imagination and ambiguity.

In large established organizations, the "Gods of Rationality" are **structure** and **certainty** which offer a way of simplifying the **complex** and **ambiguous** (Saul, 2001). Bolin and Harenstram (2008) defined this means of simplification as a spectrum between Bureaucratic and Post-Bureaucratic organizational structures with the following key characteristics

Specialization ← TO → Integration

Division of labour across individuals and functions

Centralized ← TO → Decentralized

Authority to make decisions

Formalization ← TO → Qualitative/Quantitative Measures

Control strategies that ensure predictable performance

Very few organizations exist in either a purely bureaucratic or post-bureaucratic state but instead, they manage a tension between the extremes of the organizational design characteristics of each type (Bolin & Harentsam, 2008). Moreover, the adverse impact of rigid organizational structures on creativity and innovation has been studied in detail (Hirst, 2011). Where organizations have transitioned away from the extreme ends of the bureaucracy scale, research on worker sensemaking found that transitioning towards a post-bureaucratic organization on paper needed to be coupled with an explicit sensemaking process that brought workers from defensive to exploratory mindsets (Klemsdal, 2013). In other words, changing reporting structures and creating new positions are a small part of implementing a shift in the mental models and culture of the organization. People need to explore, adjust, and reframe their role in organizational change before they can be positively engaged in the new structure.

Established Organizations // legacy or incumbent organizations in their respective sectors (Buenstorf, 2016), typically large in size with numerous inter-dependencies

Tushman and Anderson (1986) assert that the pace of technological change is not continuous, and is essentially comprised of periods of incremental change followed by sudden discontinuities (disruption) caused by technological breakthroughs that can hold the fate of established firms in the balance, depending on their ability to adapt their core competencies.

For established organizations, their incumbency in the sector means they have a certain level of structural inertia,making it difficult for them to learn from and adjust to environmental stimuli outside their industries (Hannan & Freeman, 1984; Tushman, 2017). The effect of structural inertia is dependent on how quickly external environments are changing, how quickly established organizations can learn about the change, and how responsive the organization is to re-designing itself to align with the change (Hannan & Freeman, 1984). When major shifts in technology occur, they create an imbalance in the existing ecosystem, leaving sectoral uncertainty in their wake (Tushman & Anderson, 1986). When the balance of a system is temporarily disrupted by startups that bring *"competence-destroying"* technologies to market, resilient established organizations that adapt to new conditions introduce *"competence-enhancing"* changes to reintroduce equilibrium to the system (Tushman & Anderson, 1986).

As for the public sector, we include them in our scope as there are notable similarities with private sector large organizations as viewed from the context of our research. In their comparative study of innovation in the Danish public and private sectors, Fuglsang and Pedersen (2011) show that there are indeed similarities between innovation that occurs in the public and private sectors. Primarily, the commonalities are as follows:

- Employees are the primary source of ideas for change and decisions on innovation direction
- Regulatory mechanisms are important factors in the types of innovation developed
- Both public and private sectors are focused on external drivers like increased service delivery or meeting customer needs respectively

INNOVATION BARRIERS IN LARGE ORGANIZATIONS

"Everyone wants to innovate. No one wants to change"

(Erica Hall, 2019).

Moving on to investigate what impedes innovation in large bureaucracies we find that a comprehensive literature study in a past SFI MRP (Trevarthen, 2016) established a wide enough round up of possible barriers. Trevarthen (2016) identifies the following descriptive breakdown of possible barriers to innovation in large organizations (Table 1):

Table 1 // Barriers To Innovation (Trevarthen, 2016).

Barrier to Innovation	Common Characteristics of Innovation Barrier
Organizational Model	Rule-based, hierarchical, rigidly focused on existing lines of business and process
Leadership	Heavy reliance on past successes, execution mindset, relatively low entrepreneurial spirit
Mindset	Propensity for conforming, desire for alignment of ideas, and restricted flow of information
Culture	Stability and repeatability is rewarded, low tolerance for risk and uncertainty
Capabilities	Focused on incremental improvement, dependence on existing capabilities
Market/Sector	Monopolistic organizational positions, preference for proven technology adoption

While this breakdown offers offers a comprehensive summary of barriers, we saw an opportunity to expand on the understanding of the mindset barrier by incorporating a definition of mindset (Figure 5). The mindset is the validation or the reasoning process people use to make sense of an issue, develop and act on solutions, and evaluate the outcome (Argyris, 2004). This definition lends itself more fittingly when describing barriers on a social system level, and so is more aligned with our MRP approach.

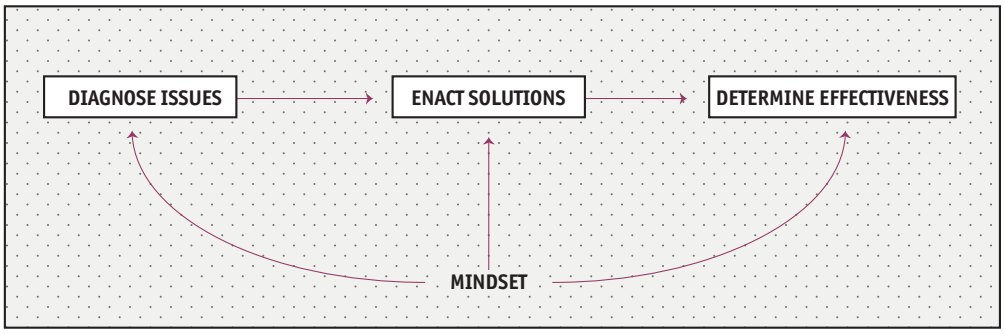


Figure 5 // Definition Of Mindset (Argyris, 2004).

In addition to organizational barriers, the innate complexity of innovation itself is described by Garud, Gehman, and Kumaraswamy (2011). Through a study of 3M Corporation, Garud et al. (2011) found that the nature of innovation itself introduces new types of challenges within organizations because successful innovation typically involves the following dynamic and socially complex factors:

Relational Complexity // innovation often involves different people at various levels of the organization interacting across different functional networks

Temporal Complexity // the dynamic nature of the innovation journey (problem framing, re-framing, and solution implementation) requires resolving differences in time horizons and feedback lags

Manifest Complexity // immense variety of ways that innovation is defined and understood

Regulative Complexity // the different processes used to develop innovations inside the organization

LIGHT AT THE END OF THE TUNNEL

// INNOVATIVE BUREAUCRACIES

As for counter-arguments to the "bureaucracy impedes innovation" theme, we find that there is a resurgence in academic and popular literature that aims to highlight the unique opportunities for large organizations to shift the conversation on innovation towards a more hopeful narrative. For innovation systems to flourish, both technical and social cross-functionality is needed (Styhre, 2007). Large organizations offer just that - they can be a promising location for innovation to thrive. They key distinction between helpful and harmful bureaucracies are whether or not the structure makes it easier for people to do their work (Adler & Borys, 1996). It follows that to develop innovation capabilities inside a bureaucratic organization, the processes and formalization of innovation need to provide support to workers to make innovation happen.

To support innovation being coded into the "DNA" of an organization, Pisano (2019) recommends that large organizations create an innovation strategy, design an innovation system that works for them, and build an innovative culture that responds to the system. Moreover, in an essay on the case for innovation in large organizations, Buenstorf (2016) suggests that established organizations are actually well positioned (and may even have a systematic advantage over new market entrants) to be innovative in their own industries.

Buenstorf (2016) identified the key direct and indirect innovation contributions of established organizations as follows:

Direct // pushing innovation forward in their own sectors and industries through productivity advances and pioneering entry into new markets

Indirect // training future entrepreneurs (involuntarily) by providing the necessary context for invention, providing exit options for startups, using their superior production and distribution mechanisms to implement innovations, and supporting research and development

In a case study of innovative Japanese brewing companies, Craig (1995) found that increased innovativeness and openness to new ideas was achieved in concert with bureaucratic structure, not in spite of it. In order to be successful at implementing an innovation agenda, large bureaucratic organizations must devote as much effort to changing the attitudes of their workforce as they do to redesigning the organizational structure to promote resource sharing and cross-functional collaboration (Craig, 1995). In this case study, the levers of bureaucracy were not seen as detrimental to innovation but instead, were used as a way to promote a new culture of innovation, while maintaining the stability and technical discipline of the organization. These organizations reinvented themselves by changing the rules to overcome their previous inertia.

As for the public sector, governments are uniquely positioned as innovators due to their policy adoption capability, access to resources, access to political will, and their ability to drive change through regulation (Portable, 2016). Portable's guide recommends that change leaders "hack the bureaucracy" through a modified eight-step Design Thinking process nestled into a framework that is intended to circumvent bureaucratic controls in order to surface something novel. Portable's (2016) report provides numerous ways for individual innovators to circumvent bureaucratic processes to bring their ideas to fruition. These approaches foreground the story of "an individual with a good idea", working to bring change despite the system limitations.

In this research study, we want to shift away from the narrative of the "individual creative" fighting the system towards an analysis of the systemic opportunities for large established organizations, including the public sector, to create the conditions necessary for sustainable innovation systems. Davis (2003) suggests the keys to implementing private sector innovation mandates can be made equally applicable to public service operation. Innovation in the public sector does not have to include changing structures to reflect private sector businesses, it means challenging the assumptions that originally created the structure (Davis, 2003). Ultimately, a successful innovation system requires leaders to encourage staff to challenge the status quo in order to generate ideas, find the right place and time for ideas to take root in order to ensure survivability, and ensure the ideas can be tested, implemented and sustained (Davis, 2003).

We argue that the same shift in mindset is required for large, established organizations in the private sector to design and implement successful innovation systems. We hypothesize that although the goals of the organizations vary, both public and private sector organizations face similar challenges when it comes to developing robust innovation systems inside rigid, inert, rule-based structures.

"It therefore seems about time to shift the conceptual focus from innovation "beauty contests" between startups and incumbents toward a more "systemic" view on how their activities interact and jointly drive the evolution of innovative industries" *(Buenstorf, 2016).*

CHAPTER 3
// RESEARCH METHODOLOGY

RESEARCH QUESTION:

HOW MIGHT WE INCREASE SUSTAINABLE, PURPOSEFUL INNOVATION WITHIN LARGE, ESTABLISHED ORGANIZATIONS?

Our research methods in this study develop an empirical view of how innovation systems operate within large, established organizations from the perspective of innovation practitioners inside the organization. We used methods of inductive inquiry, meaning that we did not apply a framework to the data in advance of theorizing. Grounded Theory (Glaser, 2002) was used to draw insights from the data provided by participants and was supported by an additional literature review once insights began to emerge. This method of research is in the tradition of human-centered design because it identifies patterns in practitioner context and behaviour to develop research insights. The acknowledgement of contextual influence makes it possible to avoid labelling individuals as "creative or not" and allows for a more holistic analysis of the conditions that promote or hinder innovation.

The survey and interview questions were refined through our advisors' reviews and comments. Our research participants were recruited through both formal (survey self-selection) and informal (professional) networks.

Denti and Hemlin (2012) view innovation in organizations "as an outcome of individual, team and organizational efforts" coming together to produce an innovation outcome (product, process, or service). They conclude that innovation is a result of activity and effort performed at different levels. So, although the unit of analysis for this research is the innovation practitioner, analysis of the research findings allowed us to uncover team and organization level dynamics. Data from both the survey and the semi-structured interviews was used to extrapolate corresponding implications for innovation systems within participants' respective organizations. The following sections describe in detail the various research methodologies that we used to construct our understanding of innovation system dynamics and recommendations for innovation system design.

BEYOND THE LITERATURE

// INNOVATION SYSTEM DYNAMICS

As presented in the previous section, we began the research project with a literature review to inform our understanding of theories around models of innovation, innovation practices in established organizations, and the impact of organizational structure on innovation. To move forward with this understanding, we mapped out the inclusion of an innovation mandate within bureaucratic processes and structures. Using causal mapping, we display below the complicated nature of large organizations (Figure 6), and highlight the various points of influence or possible areas of tension in the overall innovation process.

We found that compared to senior leaders and practitioners, middle managers have a lot more influence than we had previously assumed, which indicates a possible point of tension in the system where conflicting needs are resolved.

We also identified the collective power of the organizational identity, capabilities, and processes. The combination of these factors make up the organizational inertia that may impede the organization's ability to respond appropriately to environment changes. This structural inertia is common in established organizations and poses a challenge when it comes to timely re-organization and adaptation (Hannan & Freeman, 1984).

Additionally, to gain a practical understanding of the challenges and opportunities for innovation in established organizations, we completed a number of expert interviews. The expert interviewees helped further frame our understanding of innovation practices. Using a systems analysis tool developed by Gharajedaghi, (2011) we used the Iterative Inquiry method to explore the relationships between individual, organizational, and system contexts of innovation within large, established organizations to present our preliminary hypothesis of the system (Figure 7).

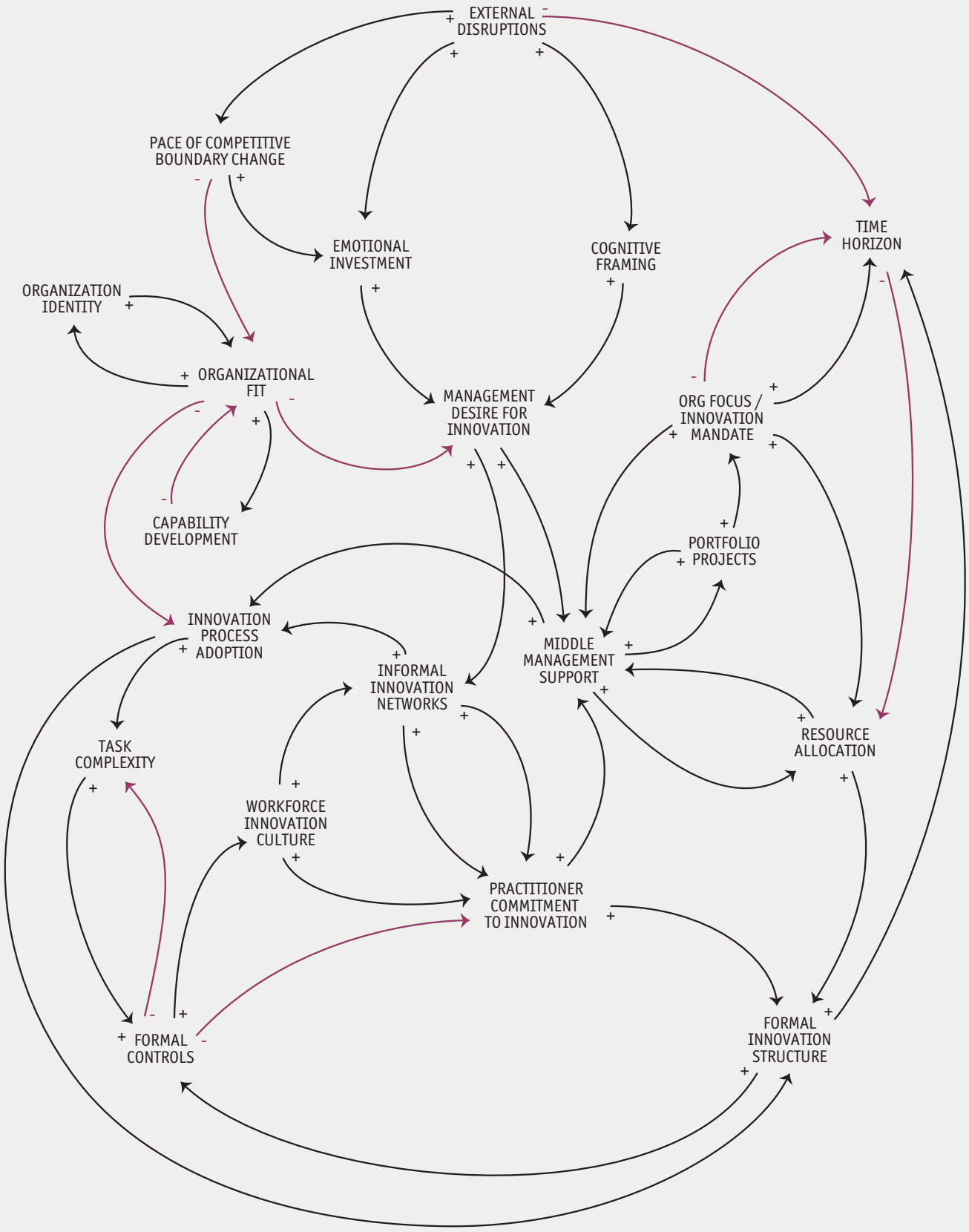


Figure 6 // Causal Mapping Of The Innovation Process Within Bureaucratic Organizations.

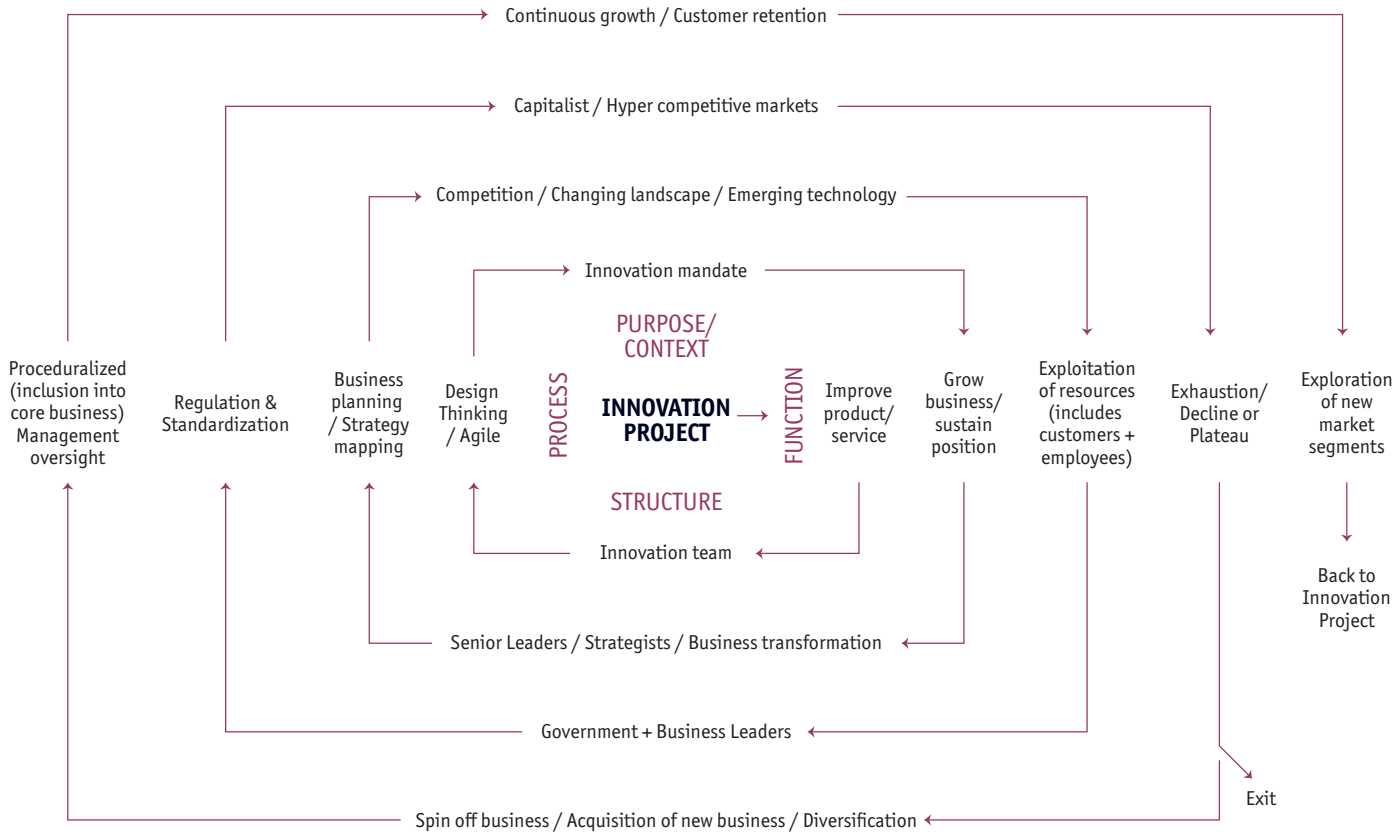


Figure 7 // Iterative Inquiry Mapping Of The System: our hypothesis presented through function, structure, process and purpose.

We find that our observations and research mirror Christensen's (2013) Innovator's Dilemma argument to a certain degree. Christensen argues that established organizations can follow a strategy successfully yet still lose their market leadership. Our mapping shows that when an organization capitalizes on a successful innovation project to the point of market saturation it risks stagnation and may eventually exhaust the market and consequently exit the market entirely.

We also find a parallel in our Iterative Inquiry to Ackoff's Idealized Design theory. Ackoff refers to unaddressed threats and opportunities working to the detriment of any organization as "mess". Accordingly, if the organization ignores or misses these factors and continue on without making change to their business, they risk becoming obsolete (Ackoff, Magidson & Addison, 2006).

We also introduce a potential disruption by examining what happens to innovation when an organization acquires other businesses or the creates of spin-off organizations. This strategy is a means for growth within new markets and opportunity spaces. However, when these separate entities are reabsorbed into the main organization the process of integration and saturation repeat.

With an understanding of how innovation systems function in a given context, we can move towards a more human-centered approach to innovation practice to understand and frame the problem from the practitioner perspective. In choosing a survey to gather data from a wide range of innovation practitioners, we deliberately set a self-selecting model. Additionally, we did not provide a definition of innovation in order to determine if there was a common understanding and perspective amongst innovation practitioners.

BASELINING INNOVATION PRACTICES

// SURVEY DESIGN

Our descriptive survey design provides a baseline understanding of innovation practitioner experiences within established organizations. The survey includes elements of complex design that provide opportunities to describe relationships among variables (Heeringa, 2010). The survey explores the relationship between practitioner understanding of innovation (i.e. definition, education, values orientation) and organizational context (i.e. sector, size, innovation processes). Data from the survey is also used as a benchmark to assess the gap, if any, between academic innovation theory and innovation practice as well as to inform the content of our semi-structured interviews.

With our survey we targeted a sample population of self-identified innovators in large organizations. The survey does not distinguish between public or private organizations in Canada, nor is it limited to Canadian audiences. However, it is our expectation that the survey was accessed via our current networks and therefore remains largely Canadian. The following outlines the key data points gathered through the survey:

Practitioner Characteristics // understand the respondent demographic

Title, Tenure, Sector, Organization Size, Innovation Typology, Practitioner Knowledge Base.

Innovation Understanding // understand how respondents think about, feel about, and enact innovation in their organizations

Definition, Organizational Context (innovative ability, source of mandate, location of innovation practice), Organizational Innovation Process (personal influence, adoption process, time to adopt, viability assessment), Value Orientations (time sense, activity), Aspirations.

The Value Orientation Method (Gallagher, 2001) is used here to determine how respondents' personal values may align or deviate from innovation values and bureaucratic values. We chose to explore the practitioner values around Time Sense and Activity as these were expected to be sources of conflict for innovators in large, established organizations. Table 2 summarizes the value orientations and the associated survey questions.

Table 2 // Value Orientation Method Descriptions (Gallagher, 2001) And Survey Questions

Activity Sense: How do practitioners think about the value of their work? Survey Question (Select One)	**Oriented Towards Being** Innovation projects are not the only way to add value.	**Oriented Towards Becoming** Innovation projects are valuable, regardless of whether they are implemented.	**Oriented Towards Doing** Innovation projects are valuable only if they are successfully implemented.
Time Sense: How do practitioners think about time? Survey Question (Select One)	**Orientation To Past** The most innovative organizations rely on their past experiences to build their future.	**Orientation to Present** The most innovative organizations operate with an understanding of the past and an openness to the future.	**Orientation to Future** The most innovative organizations operate with a focus on the future and what could be.

Finally, the survey provided a mechanism for participants to self-identify their interest in participating further. A copy of our survey questionnaire can be found in Appendix II - Methodology & Data Collection. Through the survey responses, we were able to identify 35 of 76 respondents who were screened for further involvement in the research study. The next section outlines the screening criteria and follow-through of 18 semi-structured interviews.

EXPLORING INNOVATION PERSPECTIVES

// SEMI-STRUCTURED INTERVIEWS

We conducted semi-structured interviews as a complementary method to the survey because they provide opportunities to explore the participant perspective on complex issues, to probe further on ideas that require clarification, and to overcome the discrepancies between varying professional backgrounds among participants (Barriball & While, 1994).

We used the following organizational criteria to screen for interview applicability. We did not place any screening limits for demographics (title/position, education, type of innovation practice, etc) and we required participants to have had personal involvement with designing and/or implementing innovation projects in their organizations.

Organizational Screening Criteria:

- An organization that has a presence or is based in Canada
- An organization that is established in an industry sector and has over 500 employees
- An organization that has innovation projects and initiatives that are being implemented

We structured the interviews loosely to gather data around themes that could be compared across participants but, in all cases, we encouraged participants to take detours as they felt appropriate. The semi-structured interview guide included questions around the participants' role perception (both self-perception and perception by others in the organization), their framing of the importance of innovation to their organization, as well as overall experiences associated with their organization's ability to innovate.

We included a drawing exercise to uncover insights into participants' visibility and understanding of the innovation system at their organizations. By using an example case, we are able to ask about pain-points and gains in the innovation journey. Additionally, this method allows for insight into which parts of the innovation process matter most to innovation practitioners and which parts are hidden from them within their organizational contexts. A copy of our indicative Interview Guide can be found in Appendix II - Methodology & Data Collection.

INNOVATION BEDROCK

// CAUSAL LAYERED ANALYSIS METHODOLOGY

"While organizational history cannot be unraveled, its cultural conditions can be evaluated and addressed" *(Jones, 2002a)*

To analyze the interview data we used Causal Layered Analysis (CLA), a post-structural research methodology designed to uncover deeper layers of a given problem. The CLA methodology matched our need to move the conversation beyond the superficial and towards a deeper understanding of the issue. It is based on the understanding that current social practices are fragile (Inayatullah, 1998), and therefore, can be shifted. For the purposes of our research, this is an important concept as it directly addresses common beliefs around the rigidity of norms in large organizations and highlights the possibilities for change in those contexts.

The CLA requires an analysis of four layers of meaning, adapted and described on the following page from Inayatullah (1998) and Conway (2012). We included data from our literature reviews, survey responses, and interviews to support analysis at the various levels of the CLA. This atypical approach has been used as a problem-framing method by Conway (2012) and is used in our research as a way to synthesize data into meaningful insights at various layers.

The Headlines // Exactly as it sounds, this layer captures the splashy leading headline of an issue. Data in this category is comprised of what people most commonly say about the issue and how the day-to-day symptoms of an underlying problem manifest themselves. Solutions developed from analyzing this layer alone can often result in a feeling of limited agency.

What is the common language around innovation capabilities in large, established organizations?

The System // The purpose of this layer is to explore the political, social, and economic systems as they relate to the headline. Typical sources of data include field-expert and academic contributions to problem framing that focus on evaluating the various structures and relationships between components of the system that contribute to the headlines. Solutions at this layer are focused on structural interventions or policy changes that contribute to a system change.

What are the systemic components of innovation practice in large, established organizations? What dependencies and relationships contribute to the innovation headline?

The Worldview // Underlying the construction of a system is a mental model of how things 'should' function. At this layer, researchers are asked to critically analyze the assumptions, paradigms, and ideologies that must be present for the systems in the layer above to function as they do. Data at this level is typically extracted abductively from the layers above.

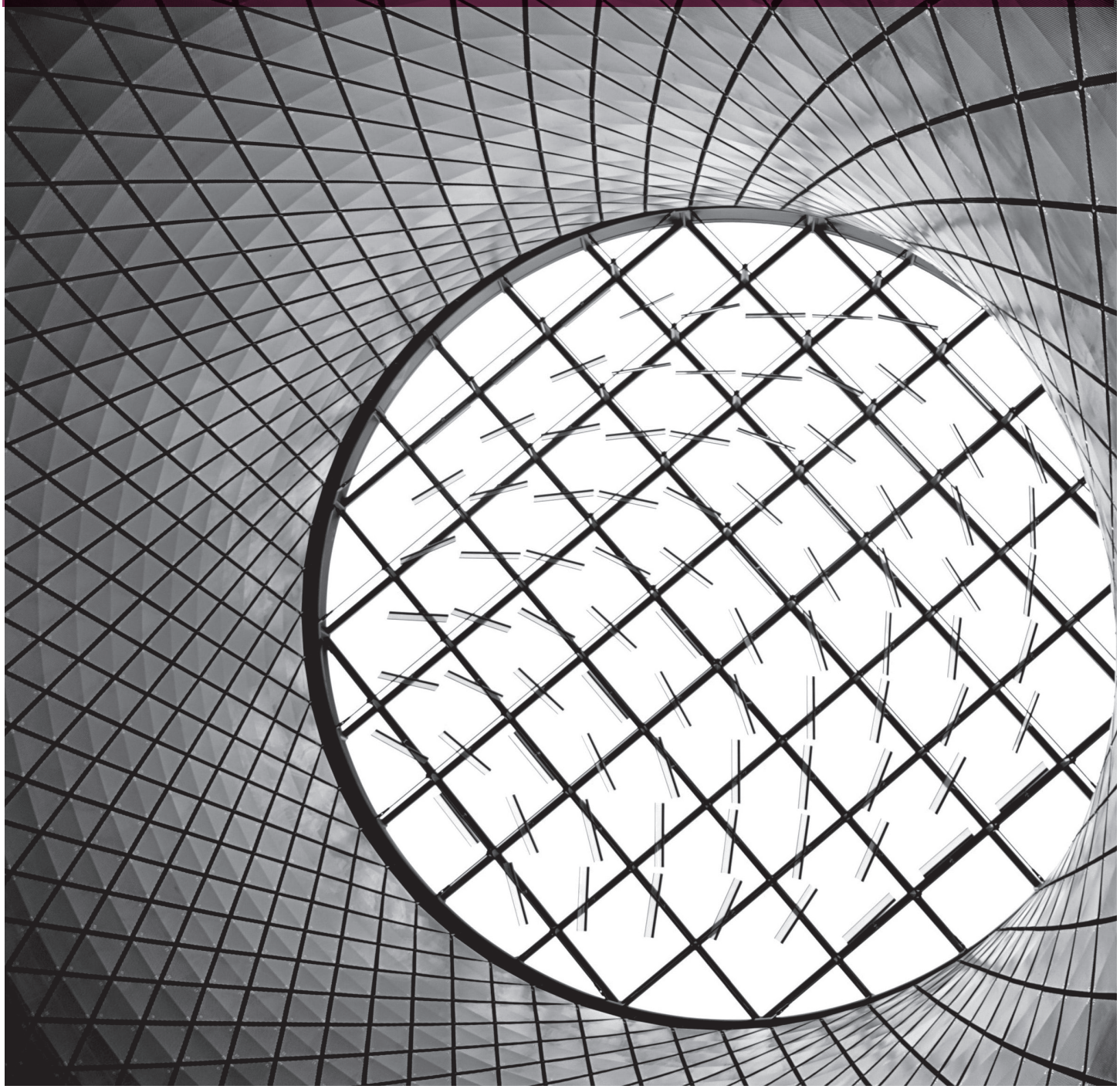
What assumptions, ideologies, and paradigms inform the way the innovation system is designed? How do innovation practitioners contextualize their work within the social, political, and economic landscapes of their organizations and sectors?

The Myth or Metaphor // This is the meaningful story that resonates deeply with people. This layer is the unconscious dimension of the problem and it is intended to evoke a visceral understanding of the story that guides the worldview level of inquiry.

What is the story that innovation practitioners in established organizations tell themselves about their work?

Solutions derived at the worldview and myth (or metaphor) levels are the source of new futures and paradigm shifts in individual, organizational, or societal levels of understanding. We used the CLA method to synthesize and analyze interview data, as well as plot the verticality of practitioner views of innovation in their unique organizations.

CHAPTER 4
// FINDINGS AND ANALYSIS



MAKING SENSE OF WHAT WE HEARD

// ANALYSIS AND INSIGHTS

The findings from our research contributed to an overall understanding of the current state of innovation practice at large legacy organizations. However, our process was chronological in the sense that we started with the survey and used the initial findings to probe further and explore certain emerging themes as we moved on to interviews. In the following section, we present our findings as such, opening with our survey findings and then building towards our interview themes.

The synthesis of both the survey and interviews formed our research insights – collective discoveries of the nuanced information that we heard, observed and collected to uncover, in broad strokes, the implications of our research.

SURVEY FINDINGS

Respondent Demographic Summary

› Total Number of Respondents: 76 (average completion rate of 83%)

› Distribution over Company Sizes: Small (7), Medium (9), and Large (60)

For the purposes of this study, we selected data from respondents that identified themselves as working in large organizations. Respondents located in large organizations are distributed over 13 different industries, with the top three industries represented as Finance and Insurance (30%), Utilities (17%), and Public Administration (13%). Organizations in these industries can be considered high reliability organizations (Weick, 1987) and as such, are likely to have a significant amount of structural inertia as a result of their mandates to provide repeatable, reliable outcomes (Hannan & Freeman, 1984).

Positionally, our respondents are Individual Contributors (43%), Team Leads (28%), and Senior Leaders (28%) with the majority of participants having 10+ years of experience in their field. Their knowledge of innovation is primarily from professional experience or formal education (Figure 8). This is in line with the literature, validating that most professionals use their individual insights and experience to do innovation work (Corsi & Neau, 2015).

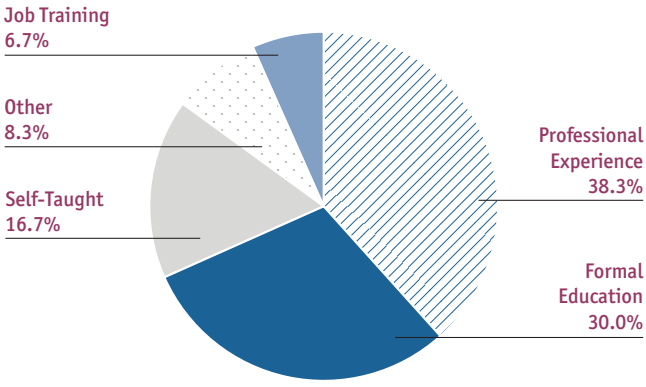


Figure 8 // Practitioner Knowledge Of Innovation In Large Organizations.

Respondents typically worked on multiple forms of innovation in the same role (Organizational / Product / Service / Experience). However, in the content analysis of the 37 responses to practitioners' aspirational innovation types (Table 3), the following data is presented:

Table 3 // Summary Of Content Analysis For Aspirational Innovation Types.

Type of Innovation	Instances (Current) 60 responses, multiple tags	Instances (Desired) 37 responses, multiple tags
Process / Organizational	48	12
Service	41	3
Experience	30	5
Product	31	2
Technical	N/A	15
Systemic / Paradigm Related	N/A	9

Participants indicated their aspirational innovation goals were in the technical and process arena, with a significant amount of respondents focused on system level innovation. As we did not provide an open field box in our question related to current innovation types, it is not clear whether there is truly a gap between actual vs. desired areas of innovation. However, this demonstrates that practitioners are intimately aware of their system/sectoral, organizational contexts when they consider future areas for innovation.

Respondents' Definition of Current and Future Innovation

The distinctions made by the survey respondents are in line with the literature in terms of defining innovation as both an outcome and a process, and also provide additional confirmation of a lack of a common innovation definition (Crossan & Apaydin, 2009).

We performed a content analysis of the definitions of innovation as provided by survey respondents using Baregheh et al. (2009) innovation attribute framework. Forty-six of 60 respondents from large organizations provided a written definition of innovation, with 72 tags identified in their responses, indicating that there is more than one innovation attribute identified in each response. Table 4 below shows a breakdown of keyword tags in responses from most common to least mentioned.

Table 4 // Summary Of Innovation Definition Content Analysis.

Attribute	Description	Instances
Nature	**Innovation appears in the form of something new (e.g. novel, different, changed, improved, etc.)**	**27**
Aims	**Innovation defined as the overall goal of an organization (e.g. value, competition, success, advantage, etc.)**	**24**
Social Context	Innovation as social production of a group or context (e.g. organization, customer, employees, etc.)	12
Stages	Innovation as a process from idea generation to implementation	9
Means	Innovation defined by the availability of resources (creativity, technical knowledge, financial support, etc)	9
Types	Innovation defined by the type of output or result (e.g. product, service, process, technical)	8

The top attributes of innovation were 'novelty' and 'aims', indicating that practitioners are framing their innovation efforts in terms of outcomes. To explore the perceived purposes of innovation, we analyzed the distribution of Aims provided by participants (Table 5). As with the initial content analysis, some entries include multiple innovation goals. Additionally, we find that the concepts of system change and problem solving are not previously identified by Baregheh et al. (2009).

Table 5 // Summary Of Key Innovation Goals.

Aim Subcategory	Instances
Increase Value for Organization / Growth / Success	**10**
Increase Value For Customer / User	**7**
Solve a Problem (generic statement)	**6**
Response to Economy / Market / Sector	3
System Change	1
Win with Competition / Advantage / Differentiation	1

Overall, we find that the innovation practitioners who responded to the survey are primarily focused on innovation as a way to deliver value to their organizations, serve customers/clients, and solve problems. This speaks to Jones's (2002) "customer intimacy" theory, where organizations that capture a certain market shift their focus on continually maintaining their position.

Respondents' Innovation Process

Surprisingly, of the respondents who provided information on their innovation processes, more than half work in organizations that do not adopt a particular innovation model. The table below summarizes the content analysis for the 50 of 60 respondents who provided data, with 61 tags applied (Table 6).

Table 6 // Summary Of Content Analysis For Innovation Processes .

Process / Model	Instances
None	35
Undisclosed/Skipped	10
Human Centered Design (HCD) / Custom HCD	**8**
Many / Various	4
Agile / Custom Agile	3
Custom to the Organization	1

Similarly, of the respondents who chose to provide data on viability, approximately half work in organizations that have no process for assessing the viability of an innovation project and have moderate influence over the generation, adoption, and implementation of a given innovation project. Table 7 below summarizes the viability assessment content analysis for 49 of 60 respondents, with a total of 63 tags applied.

Table 7 // Summary Of Content Analysis For Innovation Viability Assessment.

Viability Assessment Method	Instances
None	25
Undisclosed/Skipped	11
Organizational Constraints (legal, fiscal, stage-gate, regulatory, etc.)	**7**
Financial Return (Business Cases / Net Present Value / Return on Investment)	**6**
Executive Oversight (Screening Committee, line of business (LOB) leader input, etc.)	**6**
Pilots (User Testing, Prototypes)	3
Post-Launch Analysis	2
Subject Matter Expert (SME) Supported Research and Development	2
Differs Based on Experience/Project	1

Table 7 indicates that the majority of decision making on whether innovation projects in large organizations are pursued is made through the use of traditional organizational management techniques. Decisions based on organizational constraints, expectation for financial returns, and executive buy-in point to underlying values of stability and reasonable guarantee of outcomes for effort. As innovation projects typically involve uncertainty at the outset with no guarantee of return, innovation metrics are a site of value conflict for established organizations.

This insight can plausibly explain why the weighted mean time to get an accepted business case for innovation projects is greater than one year. If exploratory innovation projects are being approved, developed, and measured using techniques designed for exploitation practice, they are likely to require additional review and validation within the existing organizational practice.

When presented with this data point during the semi-structured interviews, Innovation Practitioners were able to provide both criticism and rationale for the longer than ideal time for approval and development of innovation ideas. This data indicates another possible conflict of temporal expectations between innovation teams and existing process time horizons in established organizations.

The majority of our respondents also believe that innovation is best practiced inside their organizations, whether that is individual contributors or in internal labs/ hubs (Figure 9).

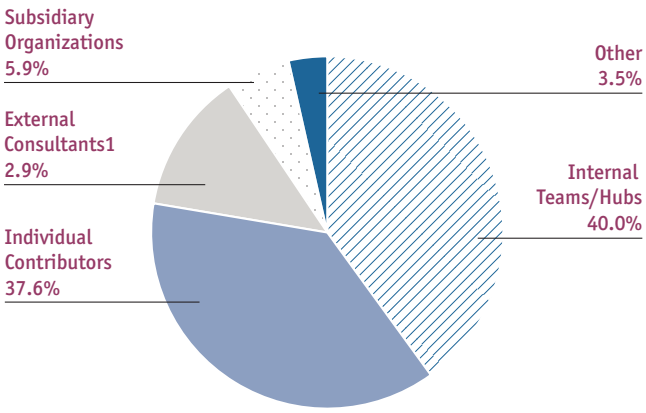


Figure 9 // Ideal Location For Innovation Practice In Large Organizations.

Practice In Large Organizations

Considering that the push for increased innovation is typically associated with changes in leadership or competitive environment (Figure 10), it follows that most respondents feel that innovation is best located inside the organization. However, when we compare these results in relationship to the reported organizational innovation capacity (Table 8), we see that responding to changes in the competitive environment is the primary driver behind innovation efforts in highly innovative organizations. Leadership appears to drive organizations that are moderately innovative, signalling a possible link between internal and external focus (Büschgens, Bausch & Balkin, 2013) as a contributor to innovation system development.

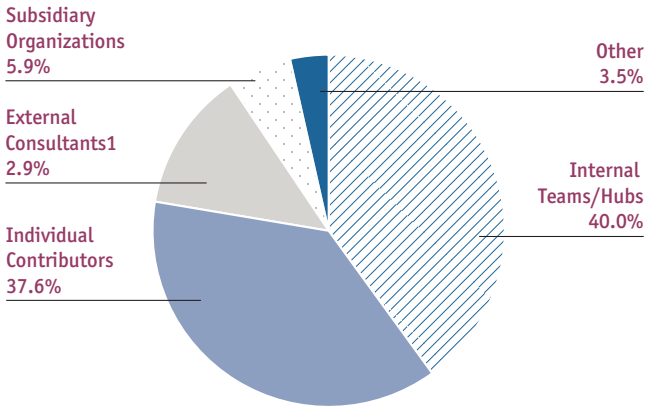


Figure 10 // Drivers Of Innovation In Large Organizations.

Table 8 // Innovation Drivers In Large Organizations Compared To Perceived Organizational Innovation Capability.

Large Organization's Ability to Innovate	Innovation Drivers				
	Leadership	Strategy	Regulation	Competitive Environment	Other
Low	4	1	1	3	5
Med	7	4	0	4	2
High	3	4	2	9	0

The survey also explored practitioner value orientations towards time and activity (see the Research Methodology section for details). The majority of respondents have an orientation towards the present and the future (Figure 11), which is consistent with what might be expected for innovation practice. However, the activity orientation is balanced between the Being, Becoming, Doing values (Figure 12). When compared to the purpose driven definitions that respondents provided, the results of the activity orientation question might demonstrate that although practitioners are working towards change, they may hold values that align with current organizational practices or with learning incrementally, more than with radical changes derived from innovation implementation.

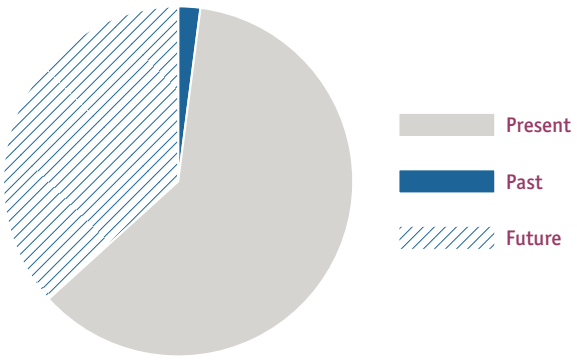


Figure 11 // Innovation Practitioner Time Orientation In Large Organizations.

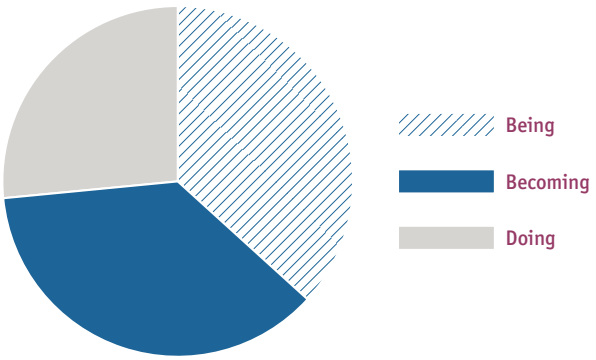


Figure 12 // Innovation Practitioner Activity Orientation In Large Organizations.

The survey shows that all respondents appear to have a moderate to high influence over both the Ideation and Implementation phases of innovation projects. The Adoption influence appears to show a split of low and high influence, however it is not possible to correlate these responses to positional authority.

Effects of Perceived Innovation Organizational Capability

When we compare responses on perceived organizational ability to innovate we see a number of patterns that can be explored further. Primarily, the belief that innovation is best practiced inside the organization in highly innovative large organizations (Table 9), even though the survey data demonstrates a lack of innovation process and assessment capacity inside these organizations.

Table 9 // Ideal Location For Innovation Practice In Large Organizations Compared To Perceived Organizational Innovation Capability.

Large Organization's Ability to Innovate	Best Location of Innovation Practice				
	Individual Contributors	Internal Hubs	Subsidiary Organization	External Consultant	Other
Low	11	5	1	3	0
Med	9	14	4	5	1
High	12	15	0	3	1

Additionally, we can see that even in organizations that are reported as highly innovative, the time to get to an approved business case skews to the one year mark (Table 10).

Table 10 // Time To Get To An Approved Business Case In Large Organizations Compared To Perceived Organizational Innovation Capability.

Large Organization's Ability to Innovate	Time to get to an approved Business Case				
	0-3 month	3-6 month	6 month -1 year	1-2 year	Other
Low	1	1	3	6	3
Med	0	0	7	5	5
High	0	5	8	4	2

Overall, the survey data provided the following key insights:

Weak Signals of Innovation System Maturity // Having an inwardly focused organization while having no distinct measurement process in place are indications of the lack of innovation process maturity. Our analysis indicates that the overall organization innovation systems are yet to mature and are currently nested within mature business management systems.

Tension Conflicts at Critical Points in the Innovation Journey // A comparison of the data provides points of potential conflict for innovation practitioners. The first potential conflict is defining innovation with a focus on novelty and use while stating value orientations that do not support action-oriented behaviours. Another conflict lies in the mismatch of certainty as an organizational value with ambiguity as an innovation practice value. The final conflict lies in the varying time horizons for implementation of innovation projects.

SEMI-STRUCTURED INTERVIEW FINDINGS

We conducted a total of 18 interviews with innovation practitioners working within 12 large legacy organizations in Canada. The majority of our interviewees were people who responded to our survey and indicated they were interested in being interviewed. Others were from our individual professional networks who fit the research criteria and were willing to participate. The interview questions primarily revolve around understanding the type of innovation projects that are currently pursued in established organizations, identifying innovation drivers and barriers in established organizations and surfacing the practitioner perspective along the innovation journey from the generation to the implementation of innovation projects. As a result of the survey findings, the following areas were selected for further exploration through the semi-structured interviews:

Practitioner Expectations // innovation process expectations in terms of time from approval to implementation, signals of success

Organizational Context and Practitioner Integration // innovation expertise organizationally centralized or integrated, collaboration
challenges and opportunities

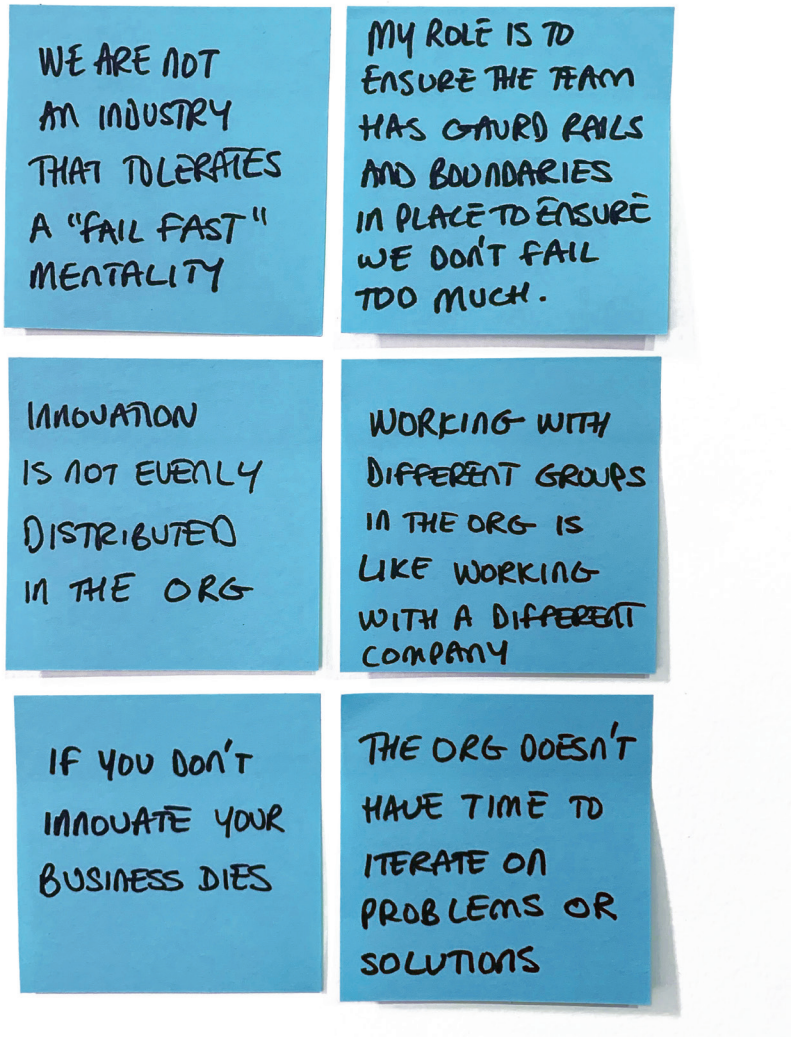
Practitioner Understanding of Overall Innovation Process // reflective opportunity for practitioners to describe and uncover new framings of their innovation process (Chia, 1996; Schon, 1983)

In order to make sense of the volume of data obtained by the 18 interviews, we followed our Secondary Advisor's recommendation to use visual coding, typical to design practice. Data from interviews are transferred onto post-its and arranged by affinity. These groups form clusters in which we test and re-organize information to formulate emergent concepts (Glaser, 2002). Based on the clusters, we then derive insights into the problems presented to us by practitioners.

The key insights into the participant problem definition are shown below, along with representative groupings to highlight supporting data within each insight.

1.0 LEGACY VALUES VS. CHANGING CONTEXT

Established organizations are being pulled between a need for adaptation in rapidly changing social, technological, and political environments and the legacy values that have helped to build their successes in the past.



1.1 Tension between changing competitive landscapes and rigid sectoral regulations

Almost all the participants we talked to appeared contextually aware of the historical and current limitations imposed by their respective sectors on their organizations, and spoke to the tension between changing/evolving customer needs and existing regulations.

> **IMPACT //** *Organizations adopt innovation mandates that fit within current sectoral norms (e.g. typically incremental or architectural in nature) and discourage exploration into non-traditional sectors.*

1.2 Risk perception varies across different units within the Organization

There is a lack of common risk assessment parameters that results in a fractured perception of risk across organizations. Participants refer to boundaries that are placed on innovation practices inside organizations in order to limit risk and indicate that the allocation of resources is determined based on an execution mindset (each layer is being measured on different outcomes). This is not surprising considering the organizations in question are considered high reliability organizations and have a significant amount of structural inertia as a result of their mandates to provide repeatable, reliable outcomes (Weick, 1987; Hannan & Freeman, 1984).

> **IMPACT //** *Innovation projects are resourced and selected on the basis of expected or certain outcomes. Additionally, to address the uncertainty of outcome, each layer of the hierarchy applies additional constraints to the innovation project.*

1.3 Ranging perceptions of "acceptable time frames" for innovation projects

The disconnected time perception causes tensions within the organization, exerting pressure on innovation teams. In some organizations, innovation teams are pressured to "deliver faster", especially when operational metrics are imposed. Acceptance of the time required to complete an innovation project with rigour in large organizations is not typically understood.

David Dunne in "Design Thinking at Work" refers to it as the organization's lack of attention span. Organizations are impatient to move on and do not have time to iterate, reframe or prototype (Dunne, 2018).

Garud et al. (2011) describe this as Temporal Complexity and attribute it to the dynamic nature of the innovation journey (problem framing, re-framing, and solution implementation) that require different time horizons and the resolution of various feedback time lags.

IMPACT // *Seeking increased speed of delivery without organizational coherence results in teams taking short-cuts in the innovation process. Teams may elect to relax rigour when following certain "time-consuming" methods.*

1.4 Growth and relevance are the main drivers for innovation

Innovation either supports growth or relevancy, and is often described in terms of a mandate or a drive for excellence. When asked about what drives innovation in their respective organizations, practitioner responses mostly indicated continual growth (another propeller) and mentioned survivability (a life raft) and an organizational mandate to offer the "best service/product/experience to customers".

IMPACT // *The organizational narrative around the need for innovation serves to raise the stakes on innovation project success (e.g. our hopes are riding on innovation, we're banking on it).*

1.5 The organizational capacity for innovation has a lot more more barriers than drivers

Uncovering mental models of the practitioners when discussing the organizational capacity for innovation revealed mostly barriers and few strengths. We categorize the barrier responses into the different types as holistically identified by Trevarthen (2016):

Structural Barriers: challenges that stem from the way an organization is set up - often described as the organization's "rigidity". Interviewees mention organizational procedures that limit autonomy and creativity and describe different lines of business within the organization as separate silos that create challenges in project alignment and execution as well as project prioritization.

Interpretive Barriers: challenges that are due to an organization-wide mindset or "worldview" that discourages innovation. Participants talked about the specific and limited types of innovation projects that get greenlit when describing their own organization's lack of innovation capacity. A number of responses pegged innovation as a separate task that is in conflict with core day-to-day activities, and indicated that failure to show impact and value reflected poorly on the whole initiative, especially when coordination with other work groups is a challenge.

Deferred Barriers: challenges that stem from the organization's risk averseness and (un) willingness to pursue innovation projects. These barriers were highlighted in participant responses that focused on the rigorous risk assessment processes associated with change and the resulting risks that required mitigation or treatment. Moreover, interviewees described feeling pressured as individuals to make innovation "happen" on their own.

Revealed Barriers: hindrances and challenges that become apparent when going through an innovation process. Participants described the difficulties of merging innovation opportunities with their existing organizational processes, especially when it comes to getting business case approval. Securing resources for innovation projects often competes with existing resource intensive operations.

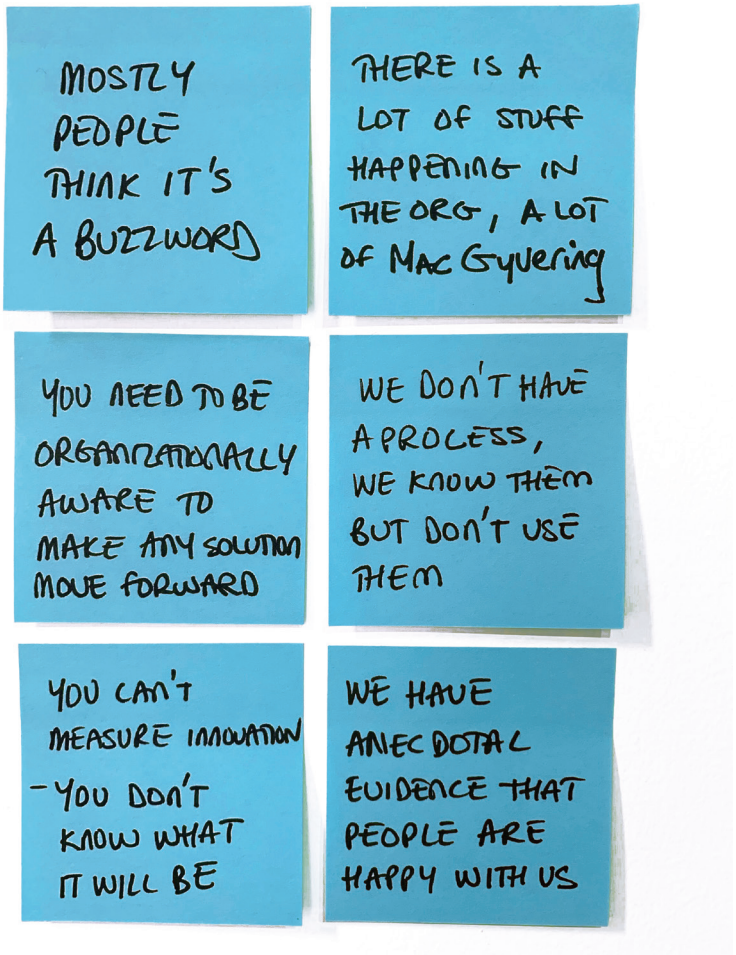
As for the strengths, responses revolved around the context or prevailing culture. Participants described how their organizations are creating innovation-friendly conditions, and are empowering employees to work on innovation projects and rewarding them for doing so. A prevailing behaviour we noted is that practitioners are actively involved in creating connectedness in the form of adhoc communities of practice and employee networks.

Martins defines organizational culture as "the deeply seated often subconscious values and beliefs shared by personnel in an organization" that reflect the organization's characteristics and underlying assumptions of what is accepted as "valid". According to Martins, these assumptions are maintained in human interactions (attitudes and behaviours), and act as a bridge between strategy (formally announced) and action (what actually takes place) (Martins & Terblanche, 2003).

IMPACT // *Practitioners are operating with a worldview that focuses on limitations as opposed to opportunity areas.*

2.0
INABILITY TO ARTICULATE THE VALUE OF INNOVATION TO THE ORGANIZATION

WIthout a clear articulation of the value of innovation to the organization, innovation efforts lack connections to the existing organizational lines of business that have defined the organizational identity and risk being seen as a management fad with minimal uptake across the wider organization.



2.1 No shared understanding of what innovation means to the organization

Varying definitions of innovation were offered by the interviewees and survey respondents. This discrepancy, at times, appeared within the same organization and within the same sector.

Responses included defining innovation as both an output (creating new), a process (following quickly, problem solving, skill set) and a mindset (people-focused, culture of change). This finding agrees with the survey data in that the definition varied across means to an end, the end itself, and culture.

IMPACT // *Range of definitions limit the practitioner's ability to articulate value or generate buy-in across the organization.*

2.2 Organizations are still shopping for Innovation frameworks

Organizations are using a wide variety of innovation models, in sequence or simultaneously. A majority of the participants were able to identify a theory-based innovation model that was adopted by their organization, (whether used as-is or customized to fit their organizational needs), however, a considerable amount of responses were vague and unclear when identifying specific processes.

IMPACT // *Combined with the lack of a common definition of innovation and measures to mark success, the variety of innovation models demonstrated that the level of innovation process maturity is low for these organizations.*

2.3 Innovation practices do not fall under an overall strategic plan

Innovation practices are dispersed across the organization - some are enterprise wide, some have limited scopes (e.g. digital scope, explorative mandate, etc), to the point that one of our respondents described this pattern as "[innovation labs] keep popping up everywhere". While this helps create a diversity of efforts, there doesn't seem to be a governing structure or mandate to coordinate the different efforts.

The various innovation hubs also tackle different aspects of the innovation journey, with few teams having the full visibility. Participants revealed this while talking through the innovation as depicted in their journey drawings. Some referred to a "black box", where projects wait while a go-ahead decision is being formulated by senior management. A number of responses indicate that innovation efforts were dispersed and performed "side of desk" without formalized support.

Without an innovation strategy to articulate an organization's commitment to innovation projects, organizations fall into Manifest Complexity, as described by Garud et al. (2011). Components of an innovation strategy include a strong vision, leadership support and direction, long term-commitment innovation, appropriate resourcing and tie-in to overall business goals (strategic orientation) (Adams, Bessant & Phelps, 2006).

IMPACT // *Leads to fragmented efforts, local success that are not likely to scale, and limited opportunity for cross-functional collaboration.*

2.4 Execution metrics do not relay the whole story

Innovation practitioners are seeking complementary metrics that capture intangible value exchanges. When asked "how do you measure innovation?", the responses ranged from "there is no accurate way to measure the value of innovation", to "strict operational/execution metrics" (e.g. the number of products developed, ROI). Interviewees admitted to wanting to measure (somewhat intangible) impacts, such as effective use of time and resources, the value of reflecting and iteration cycles, and struggled with figuring out the "correct" format. In the meantime, most relied on informal validation (cognitive trends and anecdotal evidence).

Measuring innovation is a significant challenge for execution-oriented, established organizations. In a case study of an established Canadian manufacturing firm, Lakiza and Deschamps (2018) found that for execution-oriented firms that are focused on their everyday routines, innovation metrics can be challenging to develop for the following key reasons:

Risk Aversion // counting inputs instead of outcomes, no way to measure the drivers of innovation that may result in value at a later date

Execution Mindset // focused on the visile work, miss out on capturing activities that are valuable but not "productive"

Internal Alignment // difficulties gathering and sharing information across the organization, no agreement from leadership on what is important to measure

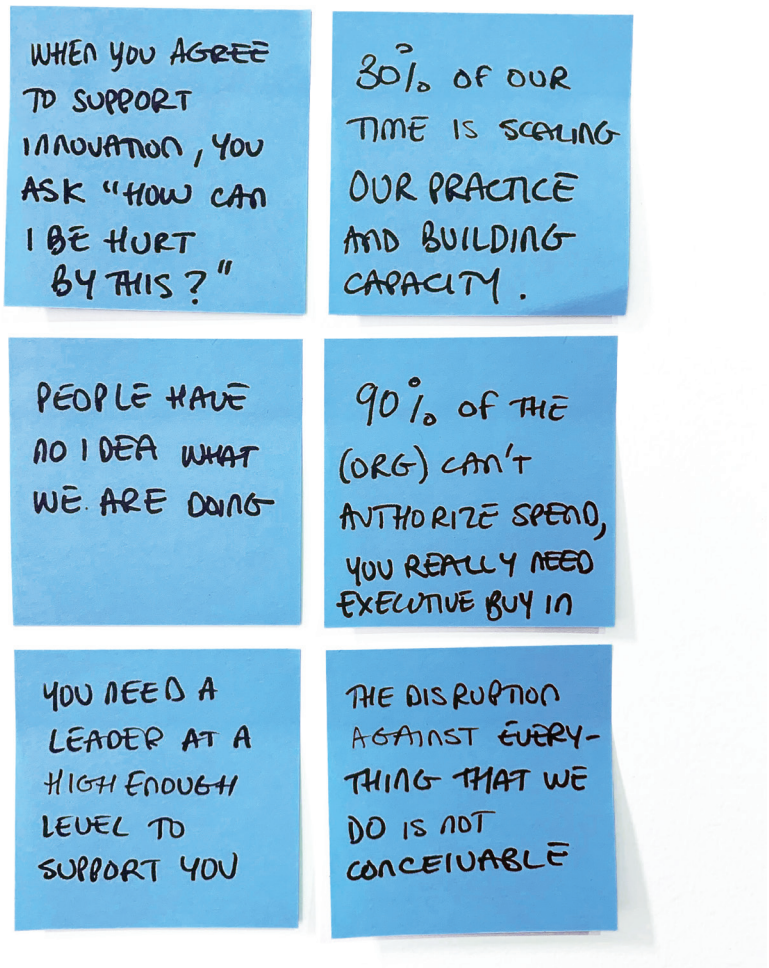
External Alignment // lack of customer or industry foresight, focused on "catching up"

Maturity // the innovation system maturity should be match with the types of innovation metrics used to signal success

IMPACT // *Without comprehensive measures for innovation value, organizations primarily invest in projects that can demonstrate value in organizationally acceptable terms, while practitioners are left to their own struggles to articulate the business value of their work.*

3.0
OVER-RELIANCE ON INDIVIDUALS TO MAKE INNOVATION HAPPEN

Without a structural approach to integrating innovation practices in established organizations, individuals (both leaders and workers) are asked to take on the system as individuals in order to ensure the success of innovation at the organization.



3.1 There is very little "upside" to innovating

Innovation practice entails a heightened perception of both personal and organizational risk, and almost no reward. Innovation practitioners do not have a clear incentive to innovate. On the contrary, they refer to a number of structural and deferred barriers. In terms of structural barriers, they are both personal and organization wide: on a personal level, there are financial growth targets and financial impacts to (not) meeting targets; and for organization-wide barriers, the interdependencies of the different lines of business create a non-localized impact of failure. As for the deferred barriers, interviewees spoke of repercussions to their career and personal reputation, as well as their organization's general fear of failure and needing certainty in measuring outcomes.

Adapting Ackoff's (2006) theory on the implications of organizations that do not support learning orientations, the following diagram (Figure 13) maps a causal relationship between active decisions that support innovation and the impact of the organizational response to failure. The balancing loop (B1) shows that as practitioners and leaders make decisions supporting innovation efforts, their accountability and visibility increases and is more easily associated with the failure of the project. Without the intervention that allows for learning from innovation failures (R1), the organization is stuck in a balancing loop that does not propel the system towards increased innovation orientation.

From this perspective, the responsibility is on the individual to become an innovative intrapreneur - someone who has knowledge of the area they are looking to change, strong social connections inside those teams, financial resourcefulness, and is driven by desire for change (Portable, 2016).

IMPACT // *Leads to a discrepancy between values in-use (risk-intolerance, fear of mistakes) and organizational espoused values (creativity, non-conformance) that ultimately limits organizational innovation potential.*

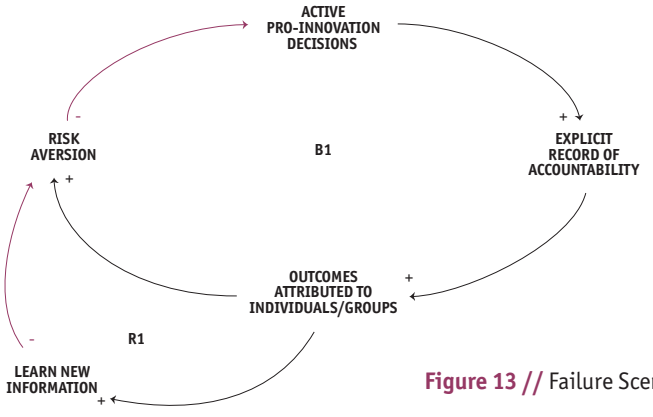


Figure 13 // Failure Scenario For Innovation Decisions.

3.2 Innovation practices are inherently hierarchical, with leaders setting the tone

Within large organizations, leaders control priorities and resources. Their support is in the form of decision making, delegation, or empowerment. They offer organization-wide legitimacy and credibility as well as set the tone and influence which innovation practices are used.

Crossan and Apaydin (2009) stress the role of leadership at all levels of an organization, citing that it is "paramount for spearheading innovation as a process and maintaining its momentum until innovation as an outcome ensues". Leaders often play multiple roles at different stages of the innovation journey; in the initial stages by supporting, guiding and promoting innovative efforts, and in the final stage where they create the necessary conditions for the implementation of innovation (Crossan & Apaydin, 2009).

IMPACT // *Uneven efforts by leaders to create structural shifts (resources, processes) means that innovation opportunities may not always be accessible across the organization.*

3.3 In the wider organization, permeation and adoption of innovation processes are low

We asked practitioners how they perceive their roles and then followed up on how others perceived them. This elicited quite a polarized response range. Answers indicated outright hostility and insecurity towards innovation practitioners and the innovation process, as well as responses that indicated a celebration of innovation and attaining novelty status, where some labs are on display for "tours".This indicates that there is significant confusion around the role, process and related outcomes/expectations.

This also speaks to Relational Complexity as described by Garud et al. (2011). Since innovation often involves different people at various levels of the organization, their interactions across different functional and hierarchical networks leads to complexity and produces tensions.

IMPACT // *Gaps in language and process between core lines of business and innovation practitioners grows, resulting in some level of mistrust or dismissal of innovation practices.*

3.4 High expectations for innovation practitioners

Innovation practitioners are expected to deliver results for the business and build internal capacity simultaneously. Practitioners spoke of how their organizations are looking for "innovation unicorns". Unanimously, we found that innovation teams have a dual mandate of managing projects as well as introducing others to processes and methodologies, and building the innovation capacity within the organization.

Our discussions also uncovered that practitioners have both an internal narrative (to rationalize how their individual skills and experiences align with the demands of their innovation role) and an external one. Practitioners are repeatedly and continually "selling" the idea that they are experts and liken their function to "consultants" who support the Line of Business (LOB) activities.

Looking back at the academic literature, we find that the pressure is on individual contributions, as employees are the primary source of ideas for change and decisions on innovation direction (Fuglsang & Pedersen, 2011).

IMPACT // *Exclusivity of the innovation practice not only widens the divide between LOBs and innovation teams, but also places additional pressure on innovation teams to constantly validate their role and deliver results.*

WHAT WE DID NOT HEAR

// THEORETICAL GAPS IN RESPONSES

The following are theoretical areas that were not clearly mentioned by practitioners during the interviews but were identified through discussions with our advisors or through the literature review.

WHERE DOES BUSINESS MODEL INNOVATION HAPPEN?

None of our practitioners mentioned this type of innovation or spoke to its role within their organizations. We do not have supporting data to indicate why this might have been omitted but we hypothesise that it may be due to the lack of visibility in other sections of the innovation journey. It is our position that adding this type of innovation into the overall project would potentially resolve the complexity surrounding the allocation of resources for innovation initiatives as well as aid in the discussion of relaying and proving implementation value. Both Doblin's Ten Types of Innovation and the 360 Innovation Capability model (Rowley et al., 2011) advocate the pursuit of a combination of innovation types.

WHAT ABOUT REFLECTIVE PRACTICE?

With the exception of one practitioner, none of our respondents articulated the need or indicated the presence of a reflective point when drawing out the innovation journey. Although many practitioners indicated points of decision and communication, the intent to critically reflect on their team's work and value was not at the forefront of practitioner processes. The importance of having a check in to reflect on the validity of the innovation process, the fit of the models in use, or even questioning the motivation for pursuing the project, seem to be overlooked. From our perspective, having a reflective point allows for the refinement and iteration of the entire innovation journey, and allows for a values based discussion that may mitigate future tensions and misaligned efforts between the broader organization strategy and innovation practice.

In their seminal work on organizational learning, Argyris and Schon developed the concepts of theories that are 'espoused' and those that are 'in-use' (Argyris & Schon, 1978). They highlight the ability of individuals inside an organization to be agents of organizational learning and change through their own agency to learn and embody values (Kappler, 1980). The concept of double loop learning (changing outcomes through changing values and norms) is a critical component of a learning organization because it brings theories in-use into consideration. By advocating for double-loop learning, organizations are challenged to overcome the "business as usual" processes that hinder people's abilities to reflect on and improve upon how they work (Argyris, 2004).

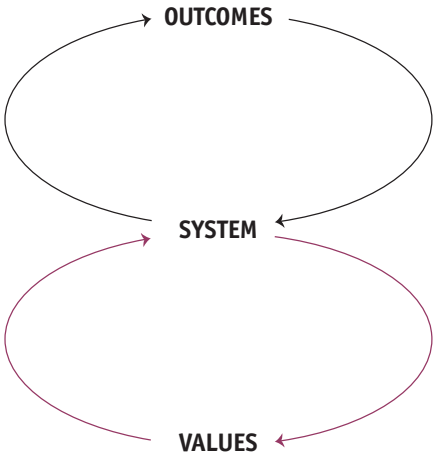


Figure 14 // Double Loop Learning (Argyris, 2004).

IS INNOVATION FATIGUE A PROBLEM?

The last aspect of innovation implementation that was not identified to the research team by practitioners is the concept of innovation fatigue.

Innovation Fatigue // the exhaustion of employees' cognitive and emotional resources caused by continuous innovation streams that results in actively avoiding engagement with future innovation efforts (Chung, Choi & Du, 2017)

In their study of highly innovative organizations in China and Korea, Chung et al. (2017) showed that employees' past experiences with the intensity and failure of innovation efforts can have a significant impact on how they engage with future innovation projects.

Chung et al. (2017) indicate that these risks are typically associated with organizations in dynamic, competitive environments that are continuously adopting and deploying new innovations into the organizational work environment. As we primarily studied practitioners of innovation and not the general organizational population, it is possible these effects are not acutely felt. Additionally, because the organizations we studied were established, legacy organizations that were beginning to develop innovation systems, it is also possible that the stream of continuous change has not yet begun to affect employee perceptions of innovation to a degree that innovation teams are confronted with an innovation fatigue response.

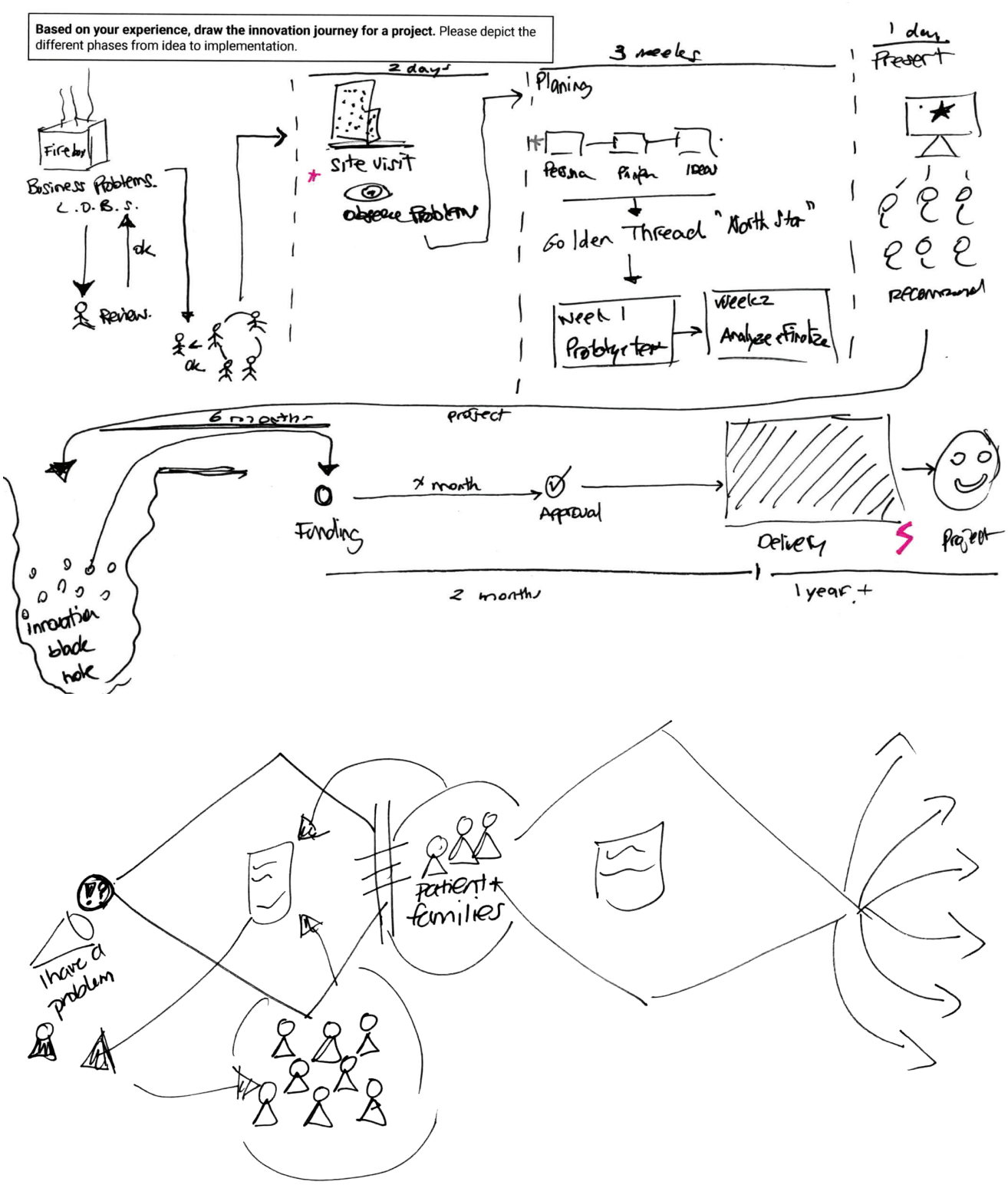


Figure 15 // Drawings By Interview Participants: the process of innovation as found in their respective organizations.

HOW FRICTIONLESS IS YOUR INNOVATION JOURNEY?

// JOURNEY MAPPING INNOVATION

Using a synthesis of the process maps that the practitioners drew out for us, we offer an alternate delivery of our insights. We used the UK Design Council's Double Diamond Method to outline the key stages of innovation (Figure 16). It is useful to note that all practitioners had some form of problem-solving or innovation development process, but not all stages of a typical innovation process were represented. The diagram below shows an amalgamation of the typical stages provided by practitioners and expands on the development and delivery phases of the project, to accomodate staged control points (shareback, business case and pilot).

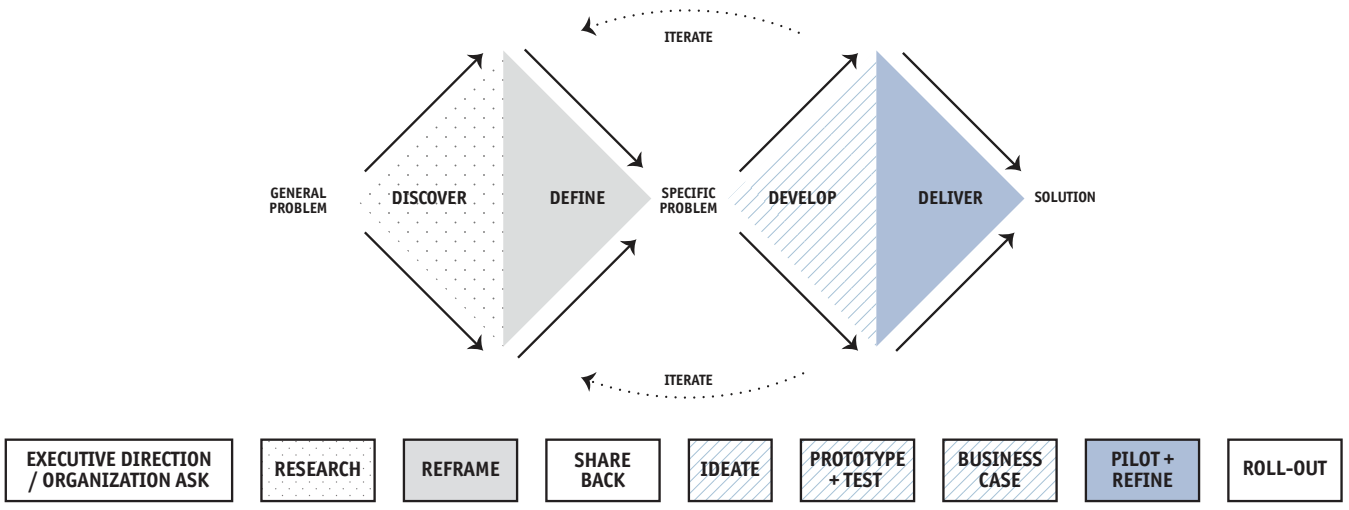


Figure 16 // Innovation Process As Outlined By Practitioners.

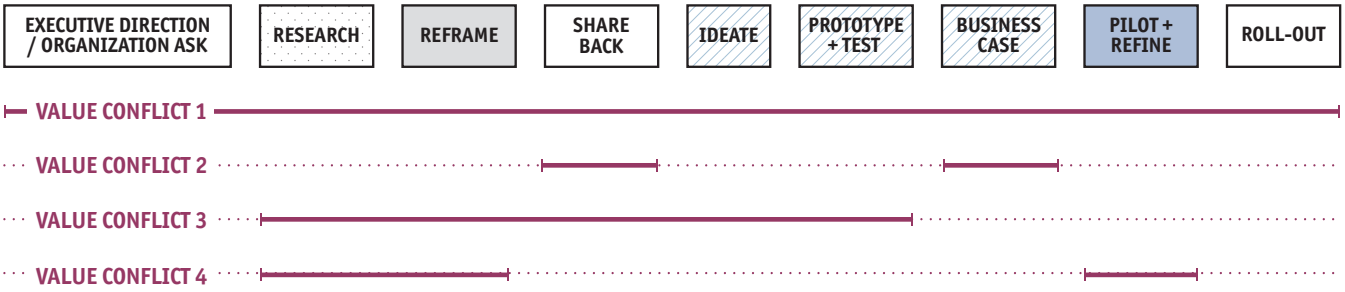


Figure 17 // Innovation Process Tensions.

In a study of the embedded values in innovation processes at ten large software firms, Jones (2002a) identifies four key ways in which value conflicts can impact innovation success, which are summarized below:

› **VALUE CONFLICT 1 //** Innovators are in a state of constant tension when it comes to reconciling differences between the organization's formal processes and their own professional values.

› **VALUE CONFLICT 2 //** When formal processes are in place, they act as points of negotiation between groups inside the organization and can result in the need for renegotiation.

› **VALUE CONFLICT 3 //** Practitioners find themselves at odds with their professional practice and the way that innovation might be practiced at the organization.

› **VALUE CONFLICT 4 //** Time pressures and typical project management expectations can negatively affect innovation practitioner or team learning and knowledge integration.

Through our interviews, we heard practitioners express these value conflicts when they described pain-points in the innovation process at their organizations. The tensions are likely related to the innovation practitioner and organizational values mismatch (e.g. differences in decision making approaches) and are mapped in Figure 16 above.

The analysis in Figure 17 can be used as a diagnostic for innovation practitioners to evaluate their own organizations and determine where in the innovation process they are likely to experience tensions due to value conflicts. The following sections of the study are devoted to providing the critical aspects of sustainable innovation systems in large, established organizations in order to present an ideal future vision, where these tensions are alleviated.

DEEP DIVE INTO INNOVATION SYSTEMS

// CAUSAL LAYERED ANALYSIS

To take a closer look at the current state construct as relayed through the surveys, interviews and literature, we refer to the Causal Layered Analysis methodology to look beyond the structures and systems in place. Our use of the CLA allows us to look to the underlying worldviews and metaphors that the current social structures rest on. The first instance of the CLA is a diagnostic of the current state where we display our full understanding based on academic research and survey and interview insights and extrapolate our hypotheses of the underlying drivers and values. We believe that surfacing underlying causes to process and system layers allows us to discover opportunities to influence and shift these values in order to build a future state CLA (Jones, 2008; Inayatullah, 1998).

CURRENT STATE CLA

Headline	"If you don't innovate your business dies" "The disruption against everything that we do is not conceivable and has a ripple effect across the organization"	"You cannot measure innovation - You don't know what it will be" "Mostly people think it's a buzzword"	"Your success depends on your leader" "It's an individual cost for communal gain"
Social System	**Risk perceptions for innovation projects are not shared across the organization** › Time perception and expectations are not shared (weighted mean time for innovation projects is +1 year) › Finance, insurance, utilities and public administration are high reliability organizations, with very little room for error **Increasing tension between changing competitive environment and sectoral lag** › Market and sector may be barriers to innovation (Trevarthen, 2016) › Regulatory mechanisms limit type of innovation (Fuglsang & Pedersen, 2011) › Rapid technology change leads to rapid innovation democratization (von Hippel, 2005) › Shifts in technology create imbalance in ecosystem and uncertainty in sector (Tushman & Anderson, 1986) › Start-ups bring disruption ("competence - destroying" tech) to market (Tushman & Anderson, 1986)	**No shared understanding of what innovation means to the organization** › Innovation practices lack strategic intent › Organizations are using a variety of models without process: goal orientation › 41.5% of respondents indicated that their organizations did not follow an innovation model or process › The term is loosely applied across academic literature, and is used interchangeably with creativity, knowledge and change (Crossan & Apaydin, 2009) **Execution metrics are insufficient to manage innovation practices** › 59% of the respondents who had a process to assess viability used traditional project management metrics and ad hoc committee decision making › People working on multiple types of innovation (product, service, experience, Organizational process) with a mixture of innovation knowledge › Innovation complexity factors are: relational, temporal, manifest and regulative (Garud et al., 2011) › Capabilities may be a barrier to innovation (Trevarthen, 2016)	**Permeation/adoption of innovation practices is low in the wider organization** › Culture, leadership and mindset may be barriers to innovation (Trevarthen, 2016) › Established organizations must focus on attitude changes to be innovative bureaucracies (Craig, 1995) › An organization needs to build a fully engaged culture of renewal to build innovation capacity (Rowley et al., 2011) **Leaders control priorities and resources** › Leadership ability and motivation to innovate are determinants of innovation (Crossan & Apaydin, 2009) › High personal and organizational risk associated with innovation projects (financial, reputational) **Expectations for innovation teams are high (get results and build capacity)** › Survey respondents demonstrated common commitment to innovation being practiced inside the organization › Individual drivers of innovation in spite of system dynamics (Portable, 2016) › Public Sector relies on employees to bring in innovation (Fuglsang & Pedersen 2011) › More value is created for the organization when multiple types of innovation are combined (Keeley et al., 2013)
Worldview	**Growth and relevance drive innovation** **Legacy organizations have difficulty innovating** **Sectoral landscapes are rigid** **Limit risk, maximize efficiency**	**Innovation is separate and not as valuable as the core business** **Innovation outcomes are too uncertain to manage**	**Organizations are transactional, individualistic environments** **Power is centralized, expectation for doing innovation work is top-down**
Metaphor	"OUR HANDS ARE TIED"	"WHAT DOES INNOVATION HAVE TO DO WITH OUR WORK?"	"NOT ALL INNOVATION EFFORTS ARE CREATED EQUAL"

To simplify the reading of the CLA we kept the three main groupings of our insights to organize our information. Starting with quotes we heard in our interviews we looked to the subsequent layers to arrive at the three foundation metaphors:

- **Our hands are tied:**
  Starting with the tension between the need to innovate and the legacy structures that hamper the very same innovation practices, our systems view uncovers the structural and procedural barriers within the organization, as well as external regulatory impediments. Moving on to the worldviews, we find that organizations set controls to the innovation process and are still quite risk averse.

- **What does innovation have to do with our work:**
  Starting with the tension that practitioners face when trying to explain or present the value of their work, our system view uncovers the lack of an organization-wide understanding of what innovation is, what it is supposed to deliver, and even how to measure the resulting impacts. For the worldview, the organizations create sandboxes for innovations to exist in, separated from the core lines of business.

- **Not all innovation efforts are created equal:**
  Starting with the tension that innovation practice is reliant on and inherently tied to individuals, we look to the organization's social system that makes up a culture that fears and avoids failure, and the hierarchical structures that place the onus on leaders to champion initiatives as well as the dual configuration of innovation teams to teach and do simultaneously. This speaks to a worldview that portrays a transactional dynamic that alters with power shifts.

CHAPTER 5
// DISCUSSION

The previous discussion outlines our analysis and findings based on what we gathered from practitioners. In addition to the problem areas described, we acknowledged the following positive themes from the data.

THE EXISTENCE OF AN ENABLING CULTURE AND INFORMAL NETWORKS THAT SUPPORT INNOVATION PRACTICE

This ties back to our insight concerning the organizational capacity for innovation. Even though we uncovered a lot more barriers than drivers, the positive notes mostly revolve around the context or prevailing culture; the creation of innovation-friendly conditions; feeling empowered and rewarded when asked to work on innovation projects; and, grassroots-led initiative of creating communities of practice. These are all methods that help mitigate the Relational Complexity we described earlier (Garud et al., 2011).

Looking to the literature, in Martins and Terblanche's 2003 study on building an organizational culture, they identify the determinants of organizational culture as strategy, structure, support mechanisms, behaviour that encourages innovation, and open communication. In their view, organizational culture stimulates creativity and innovation and point to leaders to instill an institutional framework that helps foster and establish basic cultural norms. Martins and Terblanche emphasize the ability of the organizational culture to influence the stimulation of creativity and innovation (Martins & Terblanche, 2003).

RECOGNITION THAT LEADERSHIP SUPPORT THE NEED FOR CHANGE AND ENABLE AND EMPOWER INNOVATION PRACTICE

Tying this back to our insight, innovation practices are inherently tied to leadership setting the tone, practitioners speak highly of the support they receive from their leaders, whether in the form of decision making, delegation or empowerment. Responses indicate that leaders grant legitimacy and credibility, as well as transfer clout to practitioners. This power transfer helps mitigate regulative and relational complexities that innovation practitioners face (Garud et al., 2011). Crossan also points out the instrumental role of leadership at all levels of an organization, for "spearheading innovation as a process and maintaining its momentum" until an outcome is produced (Crossan & Apaydin, 2009).

Additionally, Capra, in his Hidden Connections essay, identities the role of leadership in harnessing informal networks (such as communities of practice) and balancing their influence with those of formal structures in order to create emergent structures of learning. Capra insists that leadership needs to facilitate "novelty emergence" by creating opportunities for creativity and by empowering others, as well as building trust by sharing the process (Capra, 2004).

THE FUTURE OF INNOVATION SYSTEMS

// FORESIGHT SCENARIO

" A value is held by an individual as a meaningful principle from which one responds with action or concern, or a strong preference for a type of behavior. Organizational values are principles and preferences explicitly communicated or espoused, while values in use are preferences that drive responses and action but remain implicit" *(Jones, 2002a)*.

To create a future state for innovation systems in large, established organizations we revisited the CLA in Chapter 4. We believe that for an intervention in a system to have a "stickiness" quality to it, we need to intervene on the level of values. It is as much a matter of switching processes as it is a matter of surfacing and challenging core beliefs systems. Christensen warns of the negative impact "unexamined values" have on change (Christensen, 2013).

To build a new future, the methodology requires a new myth to be created and for the Worldviews, Systems, and Headline layers to be built as if that new myth were true. The new myths are shown below, and represent a plausible, yet aspirational future state:

Our hands are tied → Sky's the limit

What does innovation have to do with our work → Owning the innovation narrative

Not all innovation efforts are created equal → Greater than the sum of the parts

Using this foresight approach, we have developed a preferred future that represents an "Idealized Design" version of innovation practice in large organizations (Ackoff, Magidson & Addison, 2006).

FUTURE STATE CLA

Headline	We are innovation leaders"	"Everyone understands the value of innovation"	"We have the capacity and the conditions to innovate"
Social System	**Commitment to common vision, flexibility to change course** › Organizational identity is based on its role in balancing the market or sectoral ecosystem (Tushman, 2017) › Widespread learning behaviours (Capra, 2004) support an increased adoption rate for innovation practices inside the organization › Double-loop inquiry is used to encourage new ideas and challenges to the status quo (Argyris, 2004) **Active management of innovation process complexity** › Key technical, market, sector, organizational, and resource unknowns are debated openly, with the priority unknowns validated prior to selecting innovation projects to pursue (Pisano, 2019; Posner & Mangelsdorf, 2017) › Collaboration and partnerships within sector and outside of sector are maximized (Buenstorf, 2016) › Formalization of processes support increased usability of innovation tools (Adler & Borys, 1996)	**Shared understanding of what innovation is expected to deliver for the organization** › Organizations intentionally select context-specific innovation models (Anthony et al., 2008) › Innovation focus aligns with strategy to promote common pursuit of goals that will serve the organization and can garner support from a range of groups or business units (Anthony et al., 2008) › Oversight processes are designed to encourage the pursuit of innovative projects, staffed with leaders who can navigate ambiguity (Posner & Mangelsdorf, 2017) **Innovation metrics are proportional to innovation process maturity** › Rewards like bonus structure, recognition, etc. align with desired innovative behaviours such as changing direction when circumstances warrant it (Kanter, 2006; Adler & Borys, 1996) › Key Performance Indicators (KPIs) for innovation practices start by measuring behaviours at early stages of process maturity (Lakiza & Deschamps, 2018) › Quantitative measures of participation in collaborative platforms and informal connections should progress towards measures of quality ideation, research, prototyping and implementation as open innovation process maturity increases (Lee & Shin, 2017)	**Resources for innovation are collectively pooled** › Innovation processes and tools are integrated into the core / LOB processes (Adler & Borys, 1996) › Resource allocation for innovation is part of the business plan (Anthony et al., 2008) › Sustain an "innovation pyramid" that has a few big bets at the top that should be widely supported, a sub-portfolio of ideas that are in test stages, and a pool of early stage or smaller scale innovations (Kanter, 2006) **Innovation structures are organized to maximize effectiveness** › Internal labs and hubs are used to accelerate ideas to implementation (Anthony et al., 2008) › Opportunities for cross functional collaboration that take a project through the innovation process from idea to implementation (Kanter, 2006)
Worldview	**Transformational change is possible for established organizations** **Sectoral landscapes are dynamic and established organizations are uniquely positioned to influence preferred futures**	**Innovation is an integral part of the future of the organization** **Innovation process maturity requires constant learning to improve innovation project outcomes**	**Organizations are collectivist, collaborative environments** **Practitioner agency is increased through access to information and structural support for practitioners and teams**
Metaphor	"SKY'S THE LIMIT"	"OWNING THE INNOVATION NARRATIVE"	"GREATER THAN THE SUM OF ITS PARTS"

In the future state CLA we flipped foundation metaphors from the current state to create more positive or ideal state metaphors and subsequently created worldviews and organizational systems to support them. To build a future state CLA, we begin with the three foundation metaphors; this contrasts with the building the current state CLA where we start with the Headline layer.

- **Sky's the limit**
  The shift in the metaphor opens up possibilities and limits the inferred barrier discussion, and changes the worldviews that find transformational change possible for organizations that are uniquely positioned to influence preferred futures. By putting in place systems that reflect a common vision yet allow for reflection, double loop learning is established across the organization. This allows for an active management of complexity and a normalization of collaboration practices. The headline for this state is: "We are innovation leaders."

- **Owning the innovation narrative**
  This shift changes the worldview of a sandboxed innovation practice to one that is an integral part of the future of the organization and is continually evolving to improve project outcomes. The systems in place set the goals and create an outline for acceptable measures of innovation practice. The resulting headline is: "Everyone understands the value of innovation."

- **Greater than the sum of the parts**
  This shift transforms the transactional environment on individuals to collectivist, collaborative environments. The worldview advocates practitioner agency and is supported by systems that allow for cross-functional collaboration and the pooling of resources. The headline proclaims the can-do attitude: "We have the capacity and the conditions to innovate."

In order to achieve such shifts we developed a set of design principles to act as guidelines to forthcoming system interventions and solutions.

These principles will help frame the shifts in the current state to the desired future state and have elements that contribute to the creation of outcomes at all levels of the CLA. On the headlines level, everyone can speak to an overarching narrative and on the systems level, the introduction of new structures or enabling current ones builds emergence that impact the worldview and underlying values that enable the new metaphors.

HOW INNOVATIVE IS YOUR ORGANIZATION?

// INNOVATION CAPABILITY MAPPING

" Haiti's theorem [is that] there are as many potentials for innovation within Haiti as in Silicon Valley - but it is evident that the conditions of emergence, subsistence, growth and transfer make all the difference" *(Corsi & Neau, 2015).*

The quote above speaks to the conditions that predict or preclude the emergence of innovation, regardless of where it is as long as these parameters are in play. Seeking to find these parameters in our research, we found that it is not enough to indicate the presence of these conditions in as much as gauge their maturity level.

To do so we reformulated the indicators uncovered in the research thus far, into a 2x2 matrix that presents an opportunity to plot where each of the organizations that we reviewed in our MRP are in terms of their innovation capability and context readiness.

For the purpose of this MRP we define innovation maturity as the measure of an organization's innovation process capability along with the organization's context readiness to adopt and support innovation practices.

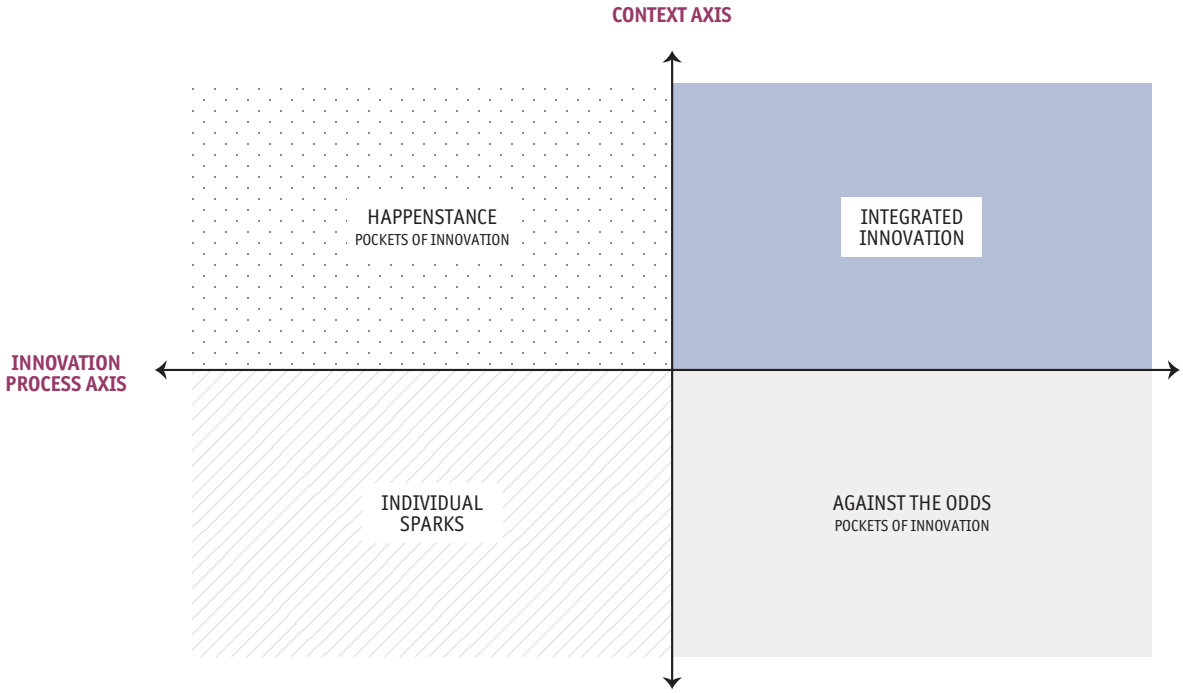


Figure 18 // Innovation Capability Maturity Of Organizations.

› **Integrated innovation**
The combination of Enabling context (adaptive, external focus, flexible and capable of incremental and radical change) and Optimised process (contextual expertise, capable of selecting and improving upon formal processes) maturity achieve the necessary conditions for innovation to flourish.

› **Against the Odds**
The combination of Inhibiting context (internal focus, rigid controls, resistant to change) and Optimised process (contextual expertise, capable of selecting and improving upon formal processes) maturity achieve the some sparks of innovation within a hostile environment; the odds are the expertise will not survive for long in this environment.

› **Happenstance**
The combination of Enabling context (adaptive, external focus, flexible and capable of incremental and radical change) and Ad Hoc process maturity (no formal innovation process) achieve the random sparks of innovation that occur without organizational intent or planning.

› **Individual Sparks**
The combination of Inhibiting context (internal focus, rigid controls, resistant to change) and Ad Hoc process (no formal innovation process) maturity might achieve some random sparks of innovation that occur on individual basis and are few and far between.

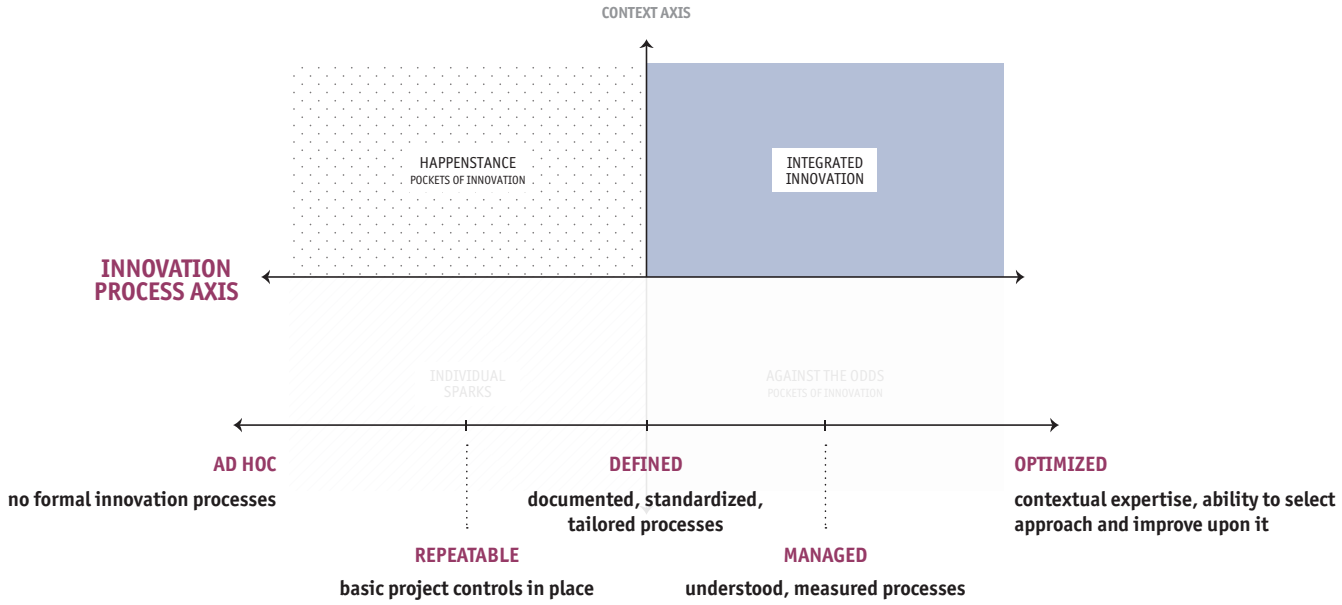


Figure 19 // 2X2 Detailed Innovation Process Axis.

INNOVATION PROCESS AXIS:

Ranging from Ad Hoc to Optimized, this axis represents the maturity of the innovation practice in terms of presence, repeatability, definition, measurement and optimization of processes across the organization. The stages of the axis are adapted maturity definitions provided by Paulk, Curtis, Chrissis and Weber (1993), Lakiza and Deschamps (2018), and Adams et al. (2006).

We used the Capability Maturity Model (Paulk et al., 1993) to define the innovation capability axis, which in this case represents how well the process is enacted within the organization. Although the original Capability Maturity Model was developed to support improvements in software capability, we find that the staged approach is applicable to the development of innovation capability and is robust as a diagnostic scale.

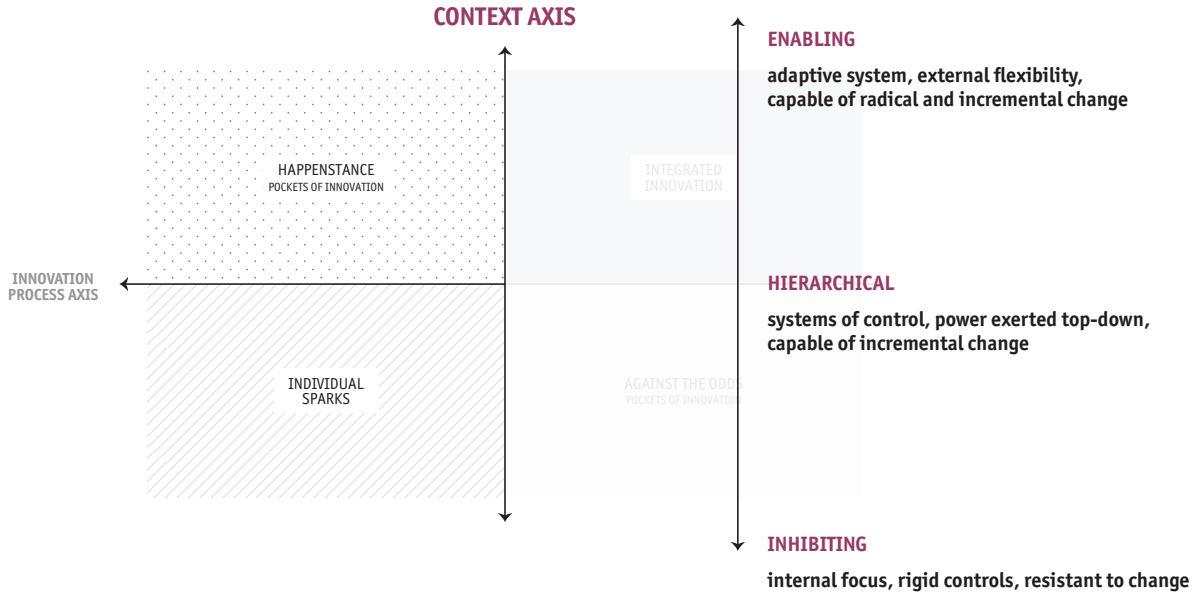


Figure 20 // 2X2 Detailed Context Axis.

CONTEXT AXIS:

Ranging from Inhibiting to Enabling, this axis represents the maturity of the organization's structure and culture readiness to embrace/absorb the practice of innovation. We look to gauge the systems of control, self organization, hierarchy and dependencies. Descriptions of organizational context were adapted from Büschgens, Bausch and Balkin (2013), as well as Adler and Borys (1996),

For organizations to be successful, they should have the capacity to absorb innovation into the organizational culture and management processes, with the essential elements of organizational culture being: shared values, beliefs, and expected behaviours. These elements influence creativity and innovation through the socialization processes and the enactment of the fundamental values, assumptions and beliefs as structures, policy, practices, management practices and procedures (Martins & Terblanche, 2003).

Based on our analysis of the data presented by our innovation practitioners, we were able to identify a common focus on process innovation. This was echoed by the survey results (Table 3). However, the journey of evolution towards the integrated innovation quadrant would itself require a purposeful process innovation approach. To achieve this, the following section provides principles and recommendations for taking the research insights into action for innovation practitioners.

FROM INSIGHT TO ACTION

// DESIGN PRINCIPLES AND RECOMMENDATIONS FOR INNOVATION SYSTEMS

"Organizations of every size have to move deliberately, overhauling their thinking and approach based on the underlying values. And because organizations are—for the time being—made of people, those values should be conversational" *(Erika Hall, 2019).*

The following design principles and recommendations can be used to shift the organizational context and innovation capability toward an "Integrated Innovation" space. They are based on the research insights from this study and should be used to cultivate innovation systems inside established organizations. They can be considered the prompts for innovation practitioners and leaders to use when conceptualizing and implementing new systems of innovation.

CLARITY OF PURPOSE

The principle of 'Clarity of Purpose' acknowledges the importance of establishing a shared understanding on what innovation means to an organization.

Recomendations:

» Customize the definition of innovation for your organization.

Consider the components of an innovation definition: nature of innovation, type of innovation, stages of innovation, social context, means of innovation, the aim of innovation (Baragheh et al., 2009).

Think outcomes: what do you want innovation to deliver?

Communicate a clear vision to facilitate innovation and help focus efforts (Adams et al., 2006).

» Articulate the level of risk tolerance.

Decide what areas are up for exploration.

Decide on the acceptable levels of uncertainty that are leaders comfortable with in terms of time, effort, and returns on investment.

Consider how you might influence outside your organization to alleviate risk intolerance. Are there partners that can develop ideas before you implement them at scale?

Challenge the risk-reward assumptions and prioritize the key uncertainties that should be validated before the next phase of work.

» Understand interdependencies inside your organization.

Ensure your innovation strategy addresses opportunities to change, eliminate, or build upon these dependencies.

Understand which teams could use more cross-functional collaboration and how that could be facilitated.

Connect groups that are looking for resources to solve a problem with groups that can offer support and skills.

STRATEGIC INTENT

The principle of 'Strategic Intent' connects the purpose to the implementation road map for innovation inside an organization.

Recomendations:

» Develop an innovation strategy.

Integrate the innovation strategy with the organizational strategy and allocate resources to support it.

Consider the foresight methods and incorporate horizon scans.

Include opportunities for reflection within the innovation strategy process and be willing to adapt the innovation strategy as you learn new information.

Consider how the business model works for each innovation area, and how it could be modified.

» Shift the innovation narrative to focus on building a desired future for the organization.

Keep transformational goals at the forefront.

Influence change in your sector, seek partnerships and inspiration from outside of sector.

» Match the metrics to innovation process maturity.

Keep indicators simple and revisit them periodically to determine fit.

Focus on measuring innovative behaviours at early maturity and in later stages, measure outcomes (Lakiza et al., 2018).

VALUES ENACTED

The principle of 'Values Enacted' focuses on bridging the gap between an organization's desired values and those that are enacted through processes and norms.

Recomendations:

» Enable cross-functional collaboration

Consider how your people network for innovation, both formally and informally.

Initiate and support projects that span the organization and cross multiple functional groups.

Create and re-create teams based on the expertise required to make the innovation project a success.

Allow for spaces in which teams can co-locate, whether physical or virtual, to work on innovation projects.

» Actively reward teams and individuals based on desired innovation behaviours

Challenge how current reward systems encourage, reinforce, or inhibit innovative behaviours.

Encourage big-picture goal setting and reward appropriate strategy responses to changes in internal or external conditions.

» Build innovation capacity across the organization

Consider multiple innovation teams with varying, yet complementary mandates and processes.

Break internal boundaries between "innovators" and "lines of business employees" by allocating innovation resources to projects instead of people.

Provide access to innovation tools (i.e. training, literature, professional development opportunities, project opportunities).

REFLECTIVE CAPACITY

The principle of 'Reflective Capacity' embraces continuous learning and allows for organizational rejuvenation.

Recomendations:

» Develop the capacity for double loop learning

Consider your organizational values in-use. Are they aligned with the desired values for innovation?

Create spaces for open debate on the value and direction of innovation projects (Pisano, 2019).

Include time in the innovation cycle to reflect on the process and what changes can be made, including new innovation practices.

» Socialize innovation knowledge

Include reflective practice in the organization's innovation strategy and normalize an adaptive process of iteration and adjustment by engaging various groups (LOBs, innovation teams, etc.) to participate and integrate new learning (Jones, 2008).

Allow for social networks to engage with the innovation strategy, whether in the form of community of practice events or organization-wide competitions (Jones, 2008).

CHAPTER 6
// CONCLUSIONS AND LIMITATIONS

The intent of this Major Research Project (MRP) is to show that established, legacy organizations can indeed innovate, and to explore the ways in which their innovation approach could be designed to account for their specific organizational and sectoral realities.

Through a human-centered design approach, starting with experts in the field of innovation design, we explored the academic literature and engaged directly with self-identified innovation practitioners working in established organizations through surveys and semi-structured interviews.

We found that established organizations face a number of challenges when creating and sustaining innovation systems, primarily associated with tensions at the values level. To address these challenges, we recommend the following to support sustained innovation practice:

› Clarify the purpose of innovation for your organization,

› Create an innovation strategy,

› Build your organization's innovation capacity, and

› Reflect frequently on the health of the innovation system.

Using these recommendations to guide the innovation system development, established organizations can succeed at innovating in a way that is appropriate to their history, context, and desired futures.

LIMITATIONS OF THE STUDY

This research study on innovation systems in established organizations was empirical in nature, and aimed to explore the practitioner perspective on innovation in large, established organizations. Limitations of the study are identified below.

- **Research Participants Sample Size:** The research study was designed to explore the practical considerations of implementing innovation systems in established organizations with an overall goal of increasing innovation practices in these spaces. Research candidates opted into survey and interview participation as self-defined "innovation practitioners". As such, the practitioners came to the research with varying educational and professional experiences as well as varying definitions of innovation.
- **Research Participants Professional Titles:** Since our research participants were self selecting or from our personal networks, the reach of our study was limited to individuals with titles such as: Senior Directors, Directors, Managers, Team Leads and Practitioners. As such, our study did not include C-Suite (CEO, CIO, CTO, etc.) participation and therefore does not relay the top management team perspective.
- **Time Constraints:** Following Research Ethics Board approval in January 2019, the survey was made available for one month and the subsequent interviews were conducted over a one and a half month period in parallel with the survey time frame. As a result, not all participants who indicated an interest in being interviewed could be accommodated in the research study.
- **Geographic Location:** The survey was shared widely through researcher networks, resulting in a predominantly, but not exclusively, Canada-based response. While the selection process for interviewees was intentionally limited to Canadian organizations, the majority of the interview participants were located in the Greater Toronto Area (GTA).
- **Sectoral Variety:** By focusing on innovation systems more generally, we were able to understand the common insights across both public and private sectors but were not able to undertake a detailed analysis of the specific sectoral constraints. Further research might uncover a more nuanced view on the paradigms that shape innovation systems in various sectors.
- **Researcher Bias:** As full-time employees working in innovation spaces at established organizations, researcher experiential and mental model biases were encountered during the study. It should be stated that the researchers work in strategy and innovation spaces within the energy and banking sectors respectively.

REFLECTIONS AND FUTURE STUDY

This MRP is scratching the surface of possibilities for research in the area of innovation systems in large, established organizations. Our study exposed more opportunity areas than we could realistically design solutions for in the time frame and scope we set. There is an opportunity to consider organizational psychological and behavioural science as possible spaces where values shifts may be more readily prompted and metaphor level transformation possible. Additionally, the comparison of practitioner and organizational values in small to medium organizations versus large organizations. As a distinction was not made between the scale of the large organization, it is possible that insights can be derived through comparative study.

Finally, as we primarily focused on participants who self-identified as innovation practitioners, we did not hear from members of the organization who have an impact on the success of innovation efforts but are not involved in the associated day-to-day activities. These include C-Suite executives and professionals who interact with, resource, and work alongside the self-identified innovation practitioners. Further study on the perspectives of these demographics would (in conjunction with this research) provide a fuller picture of the innovation landscape within established organizations.

Merwad's Reflection

At the beginning of this MRP we refer to a series of discussions with our classmates and colleagues about what is and isn't innovation, where it is practiced, how it is practiced... and if we are working on "sexy innovation." Other than the (worrisome) language, the fact that some innovation is considered "better" than others reveals a certain bias towards creating hierarchies of importance when referring to work in general and innovation in particular.

We slice every human endeavor into what is worthy and what is not. While it is important to reflect on why we are innovating and what impact our innovation has on the world around us, it is worthwhile to consider if any of our practices (especially the human centered and design thinking based ones) would eventually preclude the need to differentiate "innovation" from work.

I might not be able to delete "innovation" for my vocabulary just yet, but I will certainly be more careful to avoid referring to any effort or project in terms that belittles or exalts the practice.

Lesley's Reflection

Innovation as an *"uncertain, fragile, political, and imperialistic"* endeavour (Kanter, 1988)

This major research project has been an exciting but challenging task. Efforts to problematize innovation as a propagation of the status quo are not as common as the narrative of innovation as a saviour of everything that has plateaued in today's public and private sectors. If innovation is about creativity being enacted to solve problems or build new systems, then it is ultimately about creating new futures. I wonder how power in society affects the way we define innovation, who gets to be an innovator and whose perspectives on desirability are considered.

I believe it is important to ask critical questions about these futures put before us by those with the power to build them. What worldviews and ideologies drive these visions of the future? Who wins and who loses in these scenarios?

If the metaphorical meaning can be changed to include new paradigms, there is hope that the futures built by innovation will not replicate and expand existing extractive systems, but will engage in a radical reimagination of systems rooted in human and environmental value.

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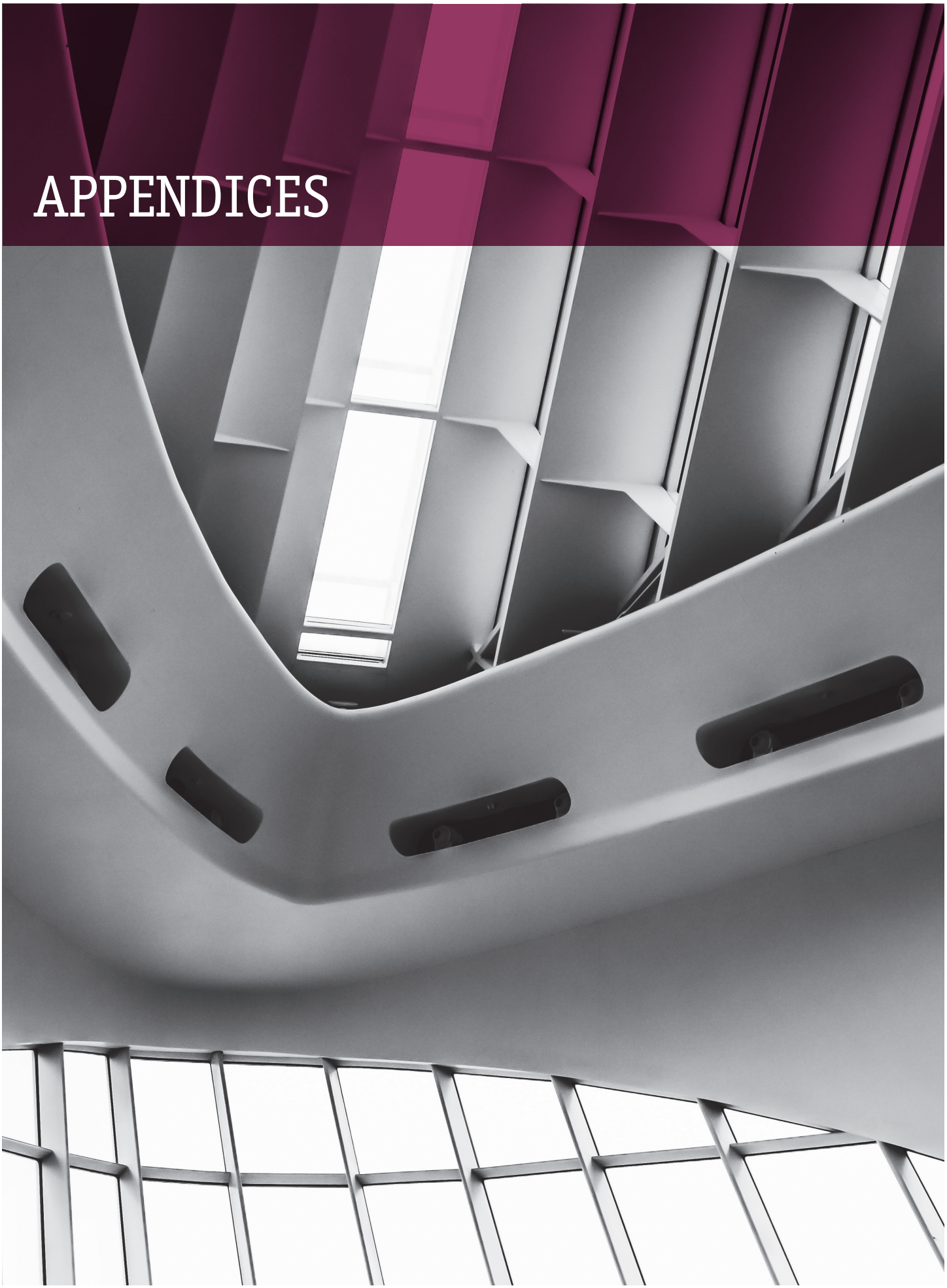
APPENDICES



APPENDIX I - RESEARCH ETHICS BOARD APPROVAL

January 21, 2019

Dr. Peter Jones, Faculty of Design – OCAD University

File No: 101488

Approval Date: January 21, 2019

Expiry Date: January 20, 2020

Dear Dr. Peter Jones, Merwad Abdallah, Lesley-Ann Foulds,

The Research Ethics Board has reviewed your application titled 'Shifting Innovation Models From Incremental to Systemic & Anticipatory in Incumbent Organizations'. Your application has been approved. You may begin the proposed research. This REB approval, dated January 21, 2019, is valid for one year less a day: January 20, 2020. Your REB number is: 2019-17.

IMPORTANT NOTE - The standard conditions for REB approval are as follows:

a. Throughout the duration of this research project all requests for modifications, renewals, and serious adverse event reports must be submitted via the ROMEO Research Portal.

b. Any changes to the research that deviate from the approved application - including changes to faculty supervisors or project team members - must be reported to the REB using the Amendment Form available on the ROMEO Research Portal. REB approval must be issued before changes can be implemented.

c. If you have received approval for more than one year, you are required to submit an Annual Progress Report Form via the ROMEO Research Portal every year as detailed in your approval letter. The Annual Progress Report Form is a very brief form that asks about any changes or adverse that may have occurred during the conduct of your research. REB approval of the Annual Progress Report Form must be issued before research activities involving human participants may continue.

d. If your research will continue beyond January 20, 2020, you must submit a Renewal Form via the ROMEO Research Portal before January 13, 2020. REB approval must be issued before research activities involving human participants may continue.

e. If your research ends on or before January 20, 2020, you must submit a Final Report Form via the ROMEO Research Portal to close out REB approval monitoring efforts. The Final Report Form is a very brief form that asks about any changes or adverse that may have occurred during the conduct of your research.

Please note that failure to comply with these conditions and the Tri -Council Policy Statement (TCPS) 2 may result in withdrawal of approval and/or impact your ability to apply for future REB review.

If you have any questions about the REB review & approval process, please contact the Christine Crisol Pineda, Manager, REB secretariat at (416) 977-6000 x4368 or cpineda@ocadu.ca.

If you encounter any issues when working in the Research Portal, please contact our system administrator via research@ocadu.ca.

Sincerely,

Nancy Snow

Chair, OCAD University Research Ethics Board

APPENDIX II - METHODOLOGY & DATA COLLECTION

SURVEY QUESTIONNAIRE

We want to get your perspective on innovation; your understanding, approach and practice within a large organization.

The information you provide will be kept confidential, i.e. your name will not be attached to the report resulting from this study. Any confidential records will only be kept until the end of the project, at which time they will be destroyed. Records and data will only be accessible to members of the research team.

* 1 Tell us about your current role

Title

Years of experience

* 2 Please select the industry you work in:

* 3 Please indicate the size of your organization

- ○ 1 to 99 employees
- ○ 100 to 499 employees
- ○ 500 employees or more

4 Please indicate the types of innovation you are involved in. Select all that apply.

- ☐ Organizational (structure, processes, business model)
- ☐ Product
- ☐ Service
- ☐ Experience (customer, brand)

5 From your experience, how would you describe your organization's ability to innovate?

We don't really innovate				We are a dynamic, innovative org
○	○	○	○	○

6 Where does most of your innovation knowledge come from?

- ○ Formal education (post-secondary, continuing etc.)
- ○ Self-taught (books, videos, research etc.)
- ○ Job training (workshops, seminars etc.)
- ○ Professional experience
- ○ Other (please specify)

7 In one sentence, how would you define innovation?

8 Typically, the push for innovation occurs in my organization when there is a:

- ○ Change in leadership
- ○ Change in business or operating strategy
- ○ Change in regulation landscape
- ○ Change in the competitive environment
- ○ Other (please specify)

9 From your experience, where is innovation best practiced in your organization? (check all that apply)

- [ ] Internal individual contributors (diffused)
- [ ] Internal dedicated teams (centralized hubs)
- [ ] Subsidiary specialized organizations (arms length)
- [ ] External Innovation Consultants (project basis)
- [ ] Other (please specify)

10 In your organization, do you use a particular innovation process?

- ○ No
- ○ Yes, please specify the process and how long you have used it

11 In your organization, how much influence do you have over:

	None					Highly influential (decision maker)
The generation of innovation ideas	○	○	○	○	○	○
The adoption of innovation business cases	○	○	○	○	○	○
The implementation of innovation initiatives	○	○	○	○	○	○

12 From your experience, how long does it typically take for an innovation idea to become an accepted business case in your organization?

- ○ 0 - 3 months
- ○ 3 - 6 months
- ○ 6 months - 1 year
- ○ 1 - 2 years
- ○ Other (please specify)

13 Does your organization have a process to assess the viability of an innovation project?

- ○ No
- ○ Yes, please describe

14 Which of the following statements do you agree with most:

- ○ The most innovative organizations rely on their past experiences to build their future.
- ○ The most innovative organizations operate with an understanding of the past and an openness to the future.
- ○ The most innovative organizations operate with a focus on the future and what could be.

15 As an innovation practitioner, which of the following statements do you identify with most:

- ○ Innovation projects are not the only way to add value.
- ○ Innovation projects are valuable, regardless of whether they are implemented.
- ○ Innovation projects are valuable only if they are successfully implemented.

16 Looking forward, what type of innovation project would you aspire to be part of?

17 Is there an area of innovation practice that we have not asked about, that you consider to be of importance? Please tell us...

18 Would you be interested in participating in a 30-60 min follow-up interview?

- ○ No
- ○ Yes, please email me at

INDICATIVE INTERVIEW GUIDE

PROJECT RECAP & CONSENT

You are invited to participate in a research study to examine innovation practice in large organizations in Canada. The purpose of this interview is to identify systemic interventions that support increased innovation practices at established (legacy) organizations.

The interview questions will primarily revolve around:

› Understanding the type of innovation projects that are currently pursued in established organizations,

› Identifying innovation drivers and barriers in established organizations,

› Surfacing the practitioner perspective along the innovation journey from the generation to the implementation of innovation projects.

Your answers will be documented through researcher field notes and audio recording, however your name and organization will be confidential. Any identification information will not appear in any thesis or report resulting from this study. Any confidential records will only be kept until the end of the project, at which time they will be destroyed. Records and data will only be accessible to members of the research team (listed above).

Participation will take approximately 1 hour of your time.

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. Further, you may decide to withdraw from this study at any time, or to request withdrawal of your data (prior to data analysis date of March 1, 2019), and you may do so without any penalty or loss of benefits to which you are entitled.

INTERVIEW QUESTIONS

Context:

› Name / Title / Organization / Contact information / Pertinent background info

1. Tell us about your organization's work (i.e. products & services)?
   › What role does innovation play in your organization?
   › How is work with innovation similar or different to other areas of the business/organization?
2. How would you describe your role within the organization?
   › How do others perceive your role?

Innovation (Thinking):

3. In your opinion, what or who drives innovation at your organization?
4. How would you describe your organization's ability to innovate?
   › If we asked 10 other people in the organization, what might they say?

Innovation (Doing)

5. In your organization, how would you describe the culture around the adoption and implementation of innovation initiatives?
6. Do you use a particular innovation process in your organization? If so, tell us about it. If not, how does innovation "happen" where you work?
7. Tell us about an innovation project that are you currently working on.
   › Could you draw the innovation journey for that project from idea to implementation?
   › Can you describe / depict the phases (in case it's not clear)
   › What were the tensions / conflicts that occured within each phase of the journey?
   › What stage do you feel most excited / empowered / frustrated / confused / concerned? Why?
8. Based on your experience, draw the innovation journey for a project. Please depict the different phases from idea to implementation.

Organizational Considerations

9. Based on our survey findings, it appears that the typical timeframe to have an innovation idea become an accepted business case is 1 year. How does that time compare to what you would expect?
10. What are the markers of successful innovation? How does your organization measure them?
11. How would you describe the fit of these measures?

Wrap-up

› Is there anything else you would like us to know about your organization, your role, or your experience with innovation projects?


DRIVE THE EXPECTATION OF SPEED
THERE ARE OF THINGS THAT ARE VERY ENTERTAINING + TERESTING →
I WANT EMPOW PEOPLE OUTSIDE LINES
MY ROLE AS A DIRECTOR IS TO ENABLE TEAMS TO OPERATE WITHIN A CULTURE OF INNOVATION.
MAKE IT HAPPEN
MY TEAM WORKS TO EMPOWER THE BOTTOM LAYER THROUGH TECH
MY ROLE IS A RELN BUILDER
DIGITAL INNOVATION "SET FRAMEWORK"
mandate within innovation project.
MOVING FORWARD
THINGS DONE
I AM A HUB FOR OTHER HUBS.
IS INNOVATION W/ VELOCITY
WE ACCELERATE OTHER LOB's PROJECTS.
MY GOAL IS TO FIND ENERGY IN UNLIKELY POCKETS +
WE REPACKAGE & RECONFIG